Burton Leonard Church of England (VC) Primary School

Computing
Sequences of Learning Year A

Autumn Term – Year A	
Year 1 and Year 2 Autumn first half term	**Year 1 and Year 2 Autumn second half term**
Unit 1.1 Online Safety & Exploring Purple Mash weeks x 4 Pupils log in to Purple Mash using their own login. Pupils create their own avatar and understand why they are used. Pupils add their name to a picture they created on the computer. Pupils develop an understanding of ownership of work online. Pupils save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work. Pupils find their saved work in the Online Work area of Purple Mash. Pupils find messages that their teacher has left for them on Purple Mash. Pupils search Purple Mash to find resources. Pupils use the different types of topic templates in the Topics section. Pupils will be confident with the functionality of the icons in the topic templates. Pupils use the different icons and writing cues to add pictures and text to their work. Pupils explore the Tools section on Purple Mash and become familiar with some of the key icons: Save, Print, Open and New. Pupils have explored the Games section and looked at Table Toons (2x tables).	**Unit 1.4 Lego Builders weeks x 3** Pupils know that to achieve the effect they want when building something, they need to follow accurate instructions. Pupils know that by following the instructions correctly, they will get the correct result. Pupils know that an algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective. Pupils can follow instructions in a computer program. Pupils can explain the effect of carrying out a task with no instructions. Pupils know that computers need precise instructions to follow. Pupils know that an algorithm written for a computer to follow is called a program. Pupils understand how the order in which the steps of a recipe are presented affects the outcome. Pupils can organise instructions for a simple recipe. Pupils know that correcting errors in an algorithm or program is called 'debugging'. **Unit 1.9 Technology outside school weeks x 2** Pupils understand what is meant by 'technology'.

Pupils can log out of Purple Mash when they have finished using it and know why that is important. **Unit 2.5 Effective Searching weeks x 3** Pupils can recall the meaning of key Internet terms; the internet is a connection of worldwide computers, World Wide Web is part of the internet, browser, search bar, search engine, website, webpage. Web address. Pupils can identify the basic parts of a web search engine search page. Pupils have learnt to read a web search results page. Pupils create a leaflet to help someone search for information on the Internet.	Pupils have considered types of technology used in school and out of school. Pupils have recorded 4 examples of where technology is used away from school. **Unit 1.2 Grouping & Sorting weeks x 2** Programs – 2DIY Pupils can sort various items offline using a variety of criteria. Pupils have used Purple Mash activities to sort various items online using a variety of criteria.
Year 3 and Year 4 Autumn first half term	**Year 3 and Year 4 Autumn second half term**
Coding 3.1 weeks x 6 Program – 2 Code Pupils can create a design that represents a sequential algorithm. Pupils can use a flowchart design to create the code. Pupils can explain what Object, Action, Output, Control and Event are in computer programming. Pupils can explain how their program simulates a physical system, i.e. my vehicles move at different speeds and angles. Pupils can describe what they did to make their vehicle change angle. Pupils can show that their vehicles move at different speeds. Pupils can make use of the X and Y properties of objects in their coding. Pupils can create an if statement in their program. Pupils can use a timer and if statement to introduce selection in their program. Pupils can explain what a variable is in programming. Pupils can explain why variables need to be named. Pupils can create a variable in a program.	**Unit 3.3 Spreadsheets weeks x 3** Pupils can create a table of data on a spreadsheet. Pupils can use a spreadsheet program to automatically create charts and graphs from data. Pupils can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations. Pupils can use the 'spin' tool to count through times tables. Pupils can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. Pupils can find specified locations in a spreadsheet.

Pupils can set/change the variable values appropriately to create a timer.
Pupils can show how their character repeats an action and explain how they caused it to do so.
Pupils are beginning to understand how the use of the timer differs from the repeat command and can experiment with the different methods of repeating blocks of code.
Pupils can explain how they made objects repeat actions Pupils can explain what debug (debugging) means.
Pupils have a clear idea of how to use a design document to start debugging a program.
Pupils can debug simple programs.
Pupils can explain why it is important to save their work after each functioning iteration of the program they are making

Unit 3.2 Online safety Weeks x 3

Pupils understand what makes a good password for use on the Internet.
Pupils are beginning to realise the outcomes of not keeping passwords safe.
Pupils can contribute to a concept map of all the different ways they know that the Internet can help us to communicate.
Pupils have contributed to a class blog with clear and appropriate messages.
Pupils understand that passwords help to limit who can see personal / private / confidential information.
Pupils understand that some information held on websites may not be accurate or true.
Pupils are beginning to understand how to search the Internet and how to think critically about the results that are returned.
Pupils have accessed and assessed a 'spoof' website.
Pupils have created their own 'spoof' webpage mock-up.
Pupils have shared their 'spoof' web page on a class display board.
Pupils evaluate facts from a website and explain how they fact checked the information that was presented.

Pupils can identify some physical and emotional effects of playing/watching inappropriate content/games. Pupils relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting.	
Year 5 and Year 6 Autumn first half term	**Year 5 and Year 6 Autumn second half term**
Unit 5.1 Coding weeks x 6 Pupils can use sketching to design a program and reflect upon their design. Pupils can create code that conforms to their design. Pupils can explain how their program simulates a physical system. Pupils can select the relevant features of a situation to incorporate into their simulation by using decomposition and abstraction. Pupils can reflect upon the effectiveness of their simulation. Pupils can explain what a variable is in programming. Pupils can set/change the variable values appropriately. Pupils know some ways that text variables can be used in coding Pupils can create a game which has a timer and score pad. Pupils can use variables to control the objects in the game. Pupils can create loops using the timer and If/else statements. Pupils can include buttons and objects that launch windows to websites and programs. Pupils can code a program that informs others. **Unit 5.2 Online safety weeks x 3** Pupils think critically about what they share online, even when asked by a usually reliable person to share something. Pupils have clear ideas about good passwords. Pupils can see how they can use images and digital technology to create effects not possible without technology. Pupils have experienced how image manipulation could be used to upset them or others even using simple, freely available tools and little specialist knowledge. Pupils can cite all sources when researching and explain the importance of	**Unit 5.3 Spreadsheets weeks x 5** Pupils can create a formula in a spreadsheet to convert m to cm. Pupils can apply this to creating a spreadsheet that converts miles to km and vice versa. Pupils can use a spreadsheet to work out the area and perimeter of rectangles. Pupils can use these calculations to solve a real-life problem. Pupils can create simple formulae that use different variables. Pupils can create a formula that will work out how many days there are in x number of weeks or years. Pupils can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.

this.

Pupils select keywords and search techniques to find relevant information and increase reliability.

Pupils show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.

Spring Term – Year A	
Year 1 and Year 2 Spring first half term	**Year 1 and Year 2 Spring second half term**
Unit 2.6 Creating Pictures weeks x 5 Programs – 2PaintAPicture Pupils can explain what is meant by impressionist art. Pupils can use 2Paint a Picture to create art based upon this style. Pupils can explain what pointillism is. Pupils can use 2Paint a Picture to create art based upon this style. Pupils can describe the main features of Piet Mondrian's work. Pupils can use 2Paint a Picture to create art based upon his style. Pupils can describe the main features of art that uses repeating patterns. Pupils can use 2Paint a Picture to create art by repeating patterns in a variety of ways. Pupils can combine more than one effect in 2Paint a Picture to enhance patterns. Pupils can describe surrealist art. Pupils can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.	**Unit 1.8 Spreadsheets weeks x 3** Programs – 2Calculate Pupils can navigate around a spreadsheet. Pupils can explain what rows and columns are. Pupils can save and open sheets. Pupils can enter data into cells. Pupils can open the Image toolbox and find and add clipart. Pupils can use the 'move cell' tool so that images can be dragged around the spreadsheet. Pupils can use the 'lock' tool to prevent changes to cells. Pupils can give images a value that the spreadsheet can use to count them. Pupils can add the count tool to count items. Pupils can add the speak tool so that the items are counted out loud. Pupils can use a spreadsheet to help work out a fair way to share items.
Year 3 and Year 4 Spring first half term	**Year 3 and Year 4 Spring second half term**
Unit 3.5 Email (including email safety) weeks x 6 Pupils can list a range of different ways to communicate. Pupils can use 2Connect to highlight the strengths and weaknesses of each method. Pupils can order the various types of communication that have been used through history. Pupils can open an email and respond to it.	**Unit 3.6 Branching Databases weeks x 4** Programs – 2Question Pupils understand how YES/NO questions are structured and answered. Pupils use YES/NO questioning to play a simple game with a friend. Pupils can explain why they choose a particular question to split their database. Pupils can begin to use 'or more' and 'or less' in their questioning.

Pupils send emails to other pupils in the class. Pupils can use the search option in the address book to find a classmate when sending an email. Pupils write rules about how to stay safe using email. Pupils have contributed to classmates' rules. Pupils understand the importance of draft. Pupils create a quiz about email safety which explores scenarios that they could come across in the future. Pupils create title screens for their quizzes explaining what the quiz is about, and how to play it. Pupils can attach work to an email. Pupils know what CC means and how to use it. Pupils can read and respond to a series of email communications. Pupils can attach files appropriately and use email communication to explore ideas. Pupils know why the terms CC and BCC are used. Pupils understand when to use CC or BCC.	Pupils have contributed to a class branching database about fruit. Pupils have completed a branching database about vegetables. Pupils can edit and adapt a branching database to accommodate new entries. Pupils can choose a suitable topic for a branching database. Pupils can select and save appropriate images. Pupils can create a branching database. Pupils know how to use and debug their own and others branching databases.
Year 5 and Year 6 Spring first half term	**Year 5 and Year 6 Spring second half term**
Unit 5.4 Databases weeks x 4 Programs – 2Question, 2Investigate Pupils understand the different ways to search a database. Pupils can search a database to answer questions correctly. Pupils have designed an avatar for a class database. Pupils have successfully entered information into a class database. Pupils can create their own database on a chosen topic. Pupils can add records to their database. Pupils know what a database field is and can correctly add field information. Pupils understand how to word questions so that they can be effectively answered using a search of their database.	**Unit 5.5 Game Creator weeks x 5** Programs – 2DIY 3D Pupils can review and analyse a computer game. Pupils can describe some of the elements that make a successful game. Pupils can begin the process of designing their own game. Pupils can design the setting for their game so that it fits with the selected theme. Pupils can upload images or use the drawing tools to create the walls, floor, and roof. Pupils can design characters for their game. Pupils can decide upon, and change, the animations and sounds that the characters make. Pupils can make their game more unique by selecting the appropriate options to maximise the playability. Pupils can write informative instructions for their game so that other people can play it.

	Pupils can evaluate my their own and peers' games to help improve their design for the future.
Summer Term – Year A	
Year 1 and Year 2 Summer first half term	**Year 1 and Year 2 Summer second half term**
Unit 1.7 Coding weeks x 6 Programs – 2Code Pupils can explain what coding means. Pupils know that for the computer to make something happen, it needs to follow clear instructions. Pupils can explain what a block of code is. Pupils can read through combined blocks of code. Pupils can make a background using Design Mode. Pupils can add characters using Design Mode. Pupils can use the drop-down menu to change backgrounds and characters. Pupils can design a simple program and then create the program using 2Code. Pupils can write a program that controls how a character will move. Pupils can make a character move when clicked. Pupils can program a character to move given a variety of input events. Pupils can use collision detection to make objects interact. Pupils can program a sound to play when objects collide.	**Unit 2.1 Coding weeks x 5** Programs – 2Code Pupils can explain that an algorithm is a set of instructions. Pupils can describe the algorithms they created. Pupils can explain that for the computer to make something happen, it needs to follow clear instructions. Pupils know how the turtle object moves. Pupils understand how to use the repeat command with an object. Pupils can include a button in their programs. Pupils have contrasted the effect of the repeat command used with turtle objects to use of the repeat command with a character object. Pupils know that the turtle and character objects have different properties and move in different ways. They can begin to make choices about which object type to use. Pupils are beginning to understand that the repeat and timer commands both make objects repeat actions but function differently and the type of object can affect which is the best command to use. Pupils can explain what debug (debugging) means. Pupils have a clear idea of how to use a design document to start debugging a program. Pupils can debug simple programs. Pupils can explain why it is important to save their work after each functioning iteration of the program they are making. Pupils can create a computer program using different objects. Pupils can predict what the objects in classmates' programs will do, based on knowledge of the objects' limitations, e.g. a turtle can only move in specific ways. Pupils can explain how they know that certain objects can only move in certain ways.

Year 3 and Year 4 Summer first half term	Year 3 and 4 Summer second half term
Unit 3.7 Simulations weeks x 3 Programs – 2Simulate, 2Publish Pupils know that a computer simulation can represent real and imaginary situations. Pupils can give some examples of simulations used for fun and for work. Pupils can give suggestions of advantages and problems of simulations. Pupils can explore a simulation. Pupils can use a simulation to try out different options and to test predictions. Pupils can begin to evaluate simulations by comparing them with real situations and considering their usefulness. Pupils can analyse choices made using a branching database. Pupils can recognise patterns within simulations and make and test predictions. Pupils can identify the relationships and rules on which the simulations are based and test their predictions. Pupils can evaluate a simulation to determine its usefulness for purpose. Pupils can create their own [simple] simulation.	**Unit 3.8 Graphing weeks x 3** Programs – 2Graph Pupils can set up a graph with a given number of fields. Pupils can enter data for a graph. Pupils can produce and share graphs made on the computer. Pupils can select most appropriate style of graph for their data and explain their reasoning. Pupils have solved a maths investigation. Pupils can present the results in a range of graphical formats. Pupils will use the sorting option to make analysis of their data easier. Pupils can select most appropriate style of graph for their data and explain their reasoning.
Year 5 and Year 6 Summer first half term	**Year 5 and Year 6 Summer second half term**
Unit 5.6 3D Modelling weeks x 4 Programs – 2Design and Make Pupils know what the 2Design and Make tool is for. Pupils have explored the different viewpoints in 2Design and Make whilst designing a building. Pupils have adapted one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. Pupils have explored how to edit the polygon 3D models to design a 3D model for a purpose. Pupils have refined one of their designs to prepare it for printing. Pupils have printed their design as a 2D net and then created a 3D model. Pupils have explored the possibilities of 3D printing.	**Unit 5.7 Concept Maps weeks x 4** Programs – 2Connect Pupils can make connections between thoughts and ideas. Pupils can see the importance of recording concept maps visually. Pupils understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections'. Pupils can create a basic concept map. Pupils use 2Connect Story Mode to create an informative text. Pupils use 2Connect collaboratively to create a concept map. Pupils use Presentation Mode to present their concept maps to an audience.