Computing Intent

Computing
EYFS Prerequisite Skills for Computing from Development Matters and Early Learning Goals

EYFS						
	Advent 1	Advent 2	Lent 1	Lent 2	Pentecost 1	Pentecost 2
F1	Me and My Family	Light and Dark (colours)	People Who Help Us	Growing	Creepy Crawlies and Minibeasts	At the Farm
F2	Myself and My Super Power	Castles and Knights (fairy tales)	Space	Dinosaurs	Transport	Animals

EYFS	Personal, Social and Emotional Development	Physical Development	Understanding the world	Expressive Arts and Design
DM F1	• Remember rules without needing an adult to remind them.	• Match their developing physical skills to tasks and activities in the setting.	• Explore how things work.	
DM F2	• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: e.g. sensible amounts of 'screen time'.	• Develop their small motor skills so that they can use a range of tools competently, safely & confidently.		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	**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.			**Creating with Materials** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. •

Knowledge in red is aimed at year 1, Knowledge in green is aimed at year 2, Knowledge in black is aimed at both year 1 & 2			
Year 1/2 CYCLE A	**Advent 1**	**Advent 2**	**Lent 1**
Topic	Computing Systems and Networks 1 **Technology around us**	Programming A1 **Moving a Robot**	Programming B1 **Introduction to animation**
National Curriculum	NC: • Recognise common uses of information technology beyond school • Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • 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.	NC: • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Recognise common uses of information technology beyond school	NC: • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs
Core Knowledge	1. Know that technology is something that has been made with a purpose to help others. Know how to identify what is technology and what is not technology in the classroom. Know how to explain how these examples of technology help us. 2. Know how to turn on and log onto a computer. Know the names of the key parts of the computer e.g. screen, mouse, keyboard.	1. Know a command is what we want something to do and the outcome is what happens after the command. Know how to match a command to an outcome e.g. forward arrow makes the floor robot go forward. Know how to predict what the outcome of a command might be. 2. Know that commands and instructions need to be clear and precise. Know what happens if instructions are not clear.	1. Know how to make a sprite move on scratch Jr using a command. Know what a sprite is. Know how a sprite is different to a beebot. 2. Know that a series of commands can be joined together to create a program. Know a program must start with the **start** block. Know how to follow a given algorithm. Know how to create a program for a given purpose.

Computing Intent

Know the function of the key parts of a computer e.g. the mouse is to click on objects on the screen. 3. Know how to use a mouse Know that I move the cursor to what I want to click on. Know that different computers have different mice but they all perform the same function. 4. Know that typing is using a computer keyboard to write words. Know how to locate the letter keys for my name. Know that the space bar separates words and the backspace deletes letters. 5. Know how to use a keyboard to edit text. Know how to use the arrow keys to move the cursor. Know how to combine keyboard skills with mouse skills. 6. Know the importance of using a computer safely. Know that there are rules to follow when using a computer. Know why we should follow rules when using a computer and consequence if we don't follow them.	Know why a computer needs short and clear instructions. 3. Know that clear, precise instructions are called an algorithm. Know how to program a short algorithm into a floor robot. Know how to predict what an algorithm will look like. 4. Know how to create a longer program for a floor robot. Know how to use trial and error when creating a program. Know how create a program for a specific purpose. 5. Know how to plan a simple program. Know how to choose the order of commands in a sequence. Know how to debug (correct) a program if it doesn't work. 6. Know how to create multiple programs. Know that longer programs aren't always the most efficient. Know how to explain how the program is best suited for the problem.	3. Know how to change the value on a command block. Know how to describe the effect of changing a value. Know how to predict what will happen when the value is changed on a command block. 4. Know how to run multiple programs. Know how to add and delete sprites. Know how to run 2 programs at the same time. 5. Know how to create an algorithm based on a given task. Know how to choose appropriate programming blocks for an algorithm. Know how to explain why the blocks chosen are appropriate for a specific task. 6. Know how to use an algorithm to create a program. Know how to test a program. Know how to debug a program to make changes.
Wider Knowledge	Know how technology can help us. Know that a computer is an example of technology	Know what a given command does. Know commands are instructions. Know that an algorithm is a clear set of commands.	Know scratch jr is an onscreen programming platform. Know how to identify move programming blocks.

Computing Intent

		Know that saving work means the computer remembers what I have just done. Know that a saved file is one that can be opened again later. Know that choices are made when using a computer.	Know that a program is an algorithm written in a way a computer can understand.	Know how to edit the background on scratch jr and change the sprite. Know how to explain what will happen if the programming blocks are not joined to together. Know how to identify which programming blocks can have their values changed. Know how to explain why certain programming blocks cannot be changed. Know that each sprite will have its own programming space. Know how to write an algorithm using given programming blocks. Know how to predict the outcome of an algorithm. Know how to describe what worked in my program and what did not. Know that to improve a program after a test is called debugging.
	Skills	Identify examples of technology Explain how examples of technology help us. Choose a piece of technology to do a job. Recognise that some technology can be used in different ways. Identify the main parts of a computer. Use a mouse in different ways. Use a keyboard to type Use a keyboard to edit text.	Predict the outcome of a command on a device. Runa command on a floor robot. Choose a command for a given purpose. Choose a series of commands that can be run as a program. Combine commands in a program. Run a program on a device.	Explain what a given command does. Match a command to an outcome. Recognise how to run a command (press a button) Choose a command for a given purpose. Predict what a command will do. Understand that a program is a set of a commands that a computer can run. Combine commands in a program. Run a program on a device. Debug a program.

Computing Intent

Diversity Links	Dr. Mark Dean holds three of the original nine patents on the computer that all PCs are based upon		
Vocabulary	Technology, information technology, computer, mouse, keyboard, file, laptop, click, drag, screen, cursor, trackpad	Ask, design, code, algorithm, program, command, sequence, debug	Sprite, background, command, block, algorithm, program, code, debug
Evidence	L4- paintz.app typing L5- Poster L6- edited paintz.app typing	Photo of chn setting up route and entering commands. Saved to class file on server.	Project design worksheet lesson 5. Scanned in and saved to class folder on server

Year 1/2 CYCLE A	Lent 2	Pentecost 1	Pentecost 2
Topic	Digital painting **Creating media**	Data information **Grouping Data**	Creating media **Digital Writing**
Core Knowledge (National Curriculum)	NC: - Use technology purposefully to **create**, organise, **store manipulate and retrieve digital content** - Use technology safely and respectfully	NC: - Use technology purposefully to create, organise, store manipulate and retrieve digital content - Use technology safely and respectfully	NC: - Use technology purposefully to create, organise, store, manipulate, and retrieve digital content - Use technology safely and respectfully, keeping personal information private
Core knowledge	1. Know what different freehand tools do on paint. Know how to click on a tool and draw a line. Know how to create multiple lines using different tools. 2. Know how to use shape and line tools. Know how to use a mouse to drag a shape.	1. Know that an object is anything that can be labelled with properties e.g. animals, pencils or trees. Know that labelling an object makes it easier for humans to know what other humans are talking about. Know that labels can be used to put objects into groups. 2. Know that objects can be counted. Know how count objects with the same label and group them	1. Know what a word processor is and keyboard is used to add text into a computer. Know how to open a word processor on a computer. Know that a word processor is used for in the real world. 2. Know how to add and remove text on a computer. Know that the backspace key is used to remove text.

Computing Intent

	Know how using drag can change the size of a shape. 3. Know how to choose the correct tool for a desired effect. Know how to use multiple tools on one piece of work. Know how to combine tools to create different effects. 4. Know how to give reasons for my choices in a digital picture. Know how to use the eraser tool. Know how to use the undo a previous action. 5. Know how to create a picture using a range of different tools. Know how to change the colour of a tool. Know how to change the size of a tool. 6. Know how digital art differs from art on paper. Know how digital art is used today.	Know that computers are not intelligent and require humans to perform tasks for them. 3. Know that objects can be described in many different ways. Know how to group objects using different properties e.g. colour, size. Know that this is why we need to give labels to images on a computer. 4. Know how to count objects with the same properties. Know how to group objects with the same properties. Know how to explain why these objects are in the same group. 5. Know how to compare groups of objects. Know how to describe the objects in a group.. Know how to record how many objects are in a group. 6. Know how to answer questions about a group of objects. Know how to use group comparisons to answer a question. Know how to explain how grouping answers a question.	Know how to highlight a word by double clicking the word and delete it. 3. Know how to change the look of text on a computer. Know how to use the caps lock key to add a capital letter to my text. Know how to the bold, italic and underline tools. 4. Know how to change text to meet the needs of an audience. Know how to change the font of text. Know that the type of font can impact how easy it is to read. 5. Know how to use the undo button. Know that the undo button removes the last change made. Know that the undo button is more efficient than deleting text. 6. Know how writing on paper compares to writing on a computer. Know how to explain the differences between writing on paper and a computer. Know how to explain why people prefer writing on a computer
Wider Knowledge	Know the name of a range of tools: shape, fill, pencil, brush. Know what these tools do. Know which tools are best for a certain job e.g. fill to colour in large spaces. Know how save my work once completed. Know how to retrieve saved work.	Know some that properties and attributes means how we describe an object. Know that labelling an object is collecting simple data. Know that collected data can be counted. Know that an object can have multiple properties or attributes.	Know how to find keys on a keyboard Know that text can be edited and changed. Know when we type words on a computer they are called text. Know how to position the text cursor in the chosen location. Know that the shift key changes the output of a key.

Computing Intent

	Know to save my work under a memorable name.	Know the name of different properties. Know that information can be presented through answering a question.	
Skills	Create a picture using freehand tool. Use shape and line tools when precision is needed. Use a range of paint colours Use the fill tool to colour an enclosed area. Use the undo button to correct a mistake. Combine a range of tools to create a piece of artwork.	Identify attributes of an object Collect simple data Count objects Group objects Compare objects	Read, write and design simple sequences of code to create a desired outcome. Edit and debug simple algorithms. Manipulate features of program design. Build sequences of command blocks to match a design. Compare final project to design.
Diversity Links			
Vocabulary	Tool, select, dot, line, shape, colour	Property, data, group, label, data set, object,	Block, code, command, instructions, sequence, algorithm, program, debug, run, select, background, character, sprite, design, project
Evidence	Save paintings from lessons 3, 4 and 5 onto class server	J2e screenshots and worksheets scanned in	L6- give chn screenshot of their saved project printed out- chn to annotate

Year 1/2 CYCLE B	Advent 1	Advent 2	Lent 1
Topic	IT around us **Computer systems and networks**	Creating Media Digital photography **Creating Media**	Robot algorithms **Programming**

St Augustine's Long Term Plan

Computing Intent

National Curriculum	• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Recognise common uses of information technology beyond 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 •	• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content • Recognise common uses of information technology beyond 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	• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs
Core Knowledge	1. Know that information technology (IT) is a computer or something that has been made to work with computers. Know that technology is something that helps us. Know how information technology can us in school and beyond. 2. Know what information technology is used in school. Know how information technology is used in school e.g. an interactive whiteboard is used to show work. Know that some information technology can have more than one use e.g. an iPad can be used for research and for playing games. 3. Know how information technology is used beyond school.	1. Know how to use a digital device to take a photograph. Know a photograph is a still image taken on a camera or a digital device with a camera. Know which digital devices can and cannot take photographs. 2. Know how to take a 'good' photograph. Know a good photograph is one where the main focus of the picture is in the centre and isn't blurry. Know that a photograph can be taken in landscape or portrait. 3. Know how to describe what makes a good photograph. Know how to spot errors in photography. Know that a photograph can be improved by retaking it.	1. Know that instructions need to be clear and precise. Know that instructions have to follow a sequence. Know that an algorithm can only be followed by a computer if it is clear and precise. 2. Know what happens if the order of an algorithm is changed. Know how to use an algorithm to program a floor robot. Know that the same instruction can be used to make more than one algorithm. 3. Know how to use logical reasoning to predict the outcome of a program. Know a prediction is based on what we already know and not just a guess.

Computing Intent

	Know how to identify information technology at home and in familiar places. Know why information technology is used in so many places. 4. Know how information technology helps us. Know how information technology devices work together. Know why we use information technology. 5. Know how to use information technology safely. Know that different information technology is used in different ways. Know that there are different rules for different information technology. 6. Know that we have the responsibility to make sensible choices when using information technology. Know the consequences of not using information technology safely. Know how to explain the importance of using information technology safely.	4. Know that lighting can impact the quality of a photo. Know how to take a photo using the flash. Know how to explain the impact lighting can have on a photo. 5. Know that a photo can be edited once it has been taken. Know how to adjust the colour effect of an image. Know how to use a range of tools to edit a photo. 6. Know that all images we see are real. Know different ways a photo can be edited. Know how to spot if a photo has been edited.	Know how to compare a prediction to an outcome. 4. Know that design in programming include codes and the whole project. Know how to design and create a test mat for my program. Know how to test my mat and make improvements. 5. Know how to design an algorithm for a given purpose. Know that the algorithm has to help the robot move around the mat. Know that the algorithm will create a program. 6. Know how to create a program from an algorithm. Know that the program needs to be tested. Know that a program may need to be debugged if it isn't correct.
Wider Knowledge	Know that computers, PCs, laptops, tablets, speakers, scanners are all types of information technology. Know features of information technology. Know that technology continues to develop rapidly.	Know that photo is the short way of saying photograph Know how to take a photo. Know how to view a photo on a digital device. Know how to delete a photo. Know that the camera has to be still when taking a photo.	Know that a series of instruction is a sequence. Know that the sequence can be changed. Know that a program is an algorithm in language a computer can understand. Know that different program can have the same outcome.

Computing Intent

	Know how information technology benefits us.	Know how to use the function to change the composition of a photo. Know how to consider lighting before taking a photo	Know that debugging means to change a program.
Skills	Describe some uses of computers Identify information technology in school Identify information technology beyond school Show how to use information technology safely Recognise that choices are made when using information technology.	Capture a digital image. Take photographs in both landscape and portrait format. Hold a camera still when taking a photo. Use filters to edit the appearance of a photograph. Improve a photograph by retaking it.	Choose a series of instructions that can be run as a program. Create a program Trace a sequence to make a prediction. Runa program on a device. Debug a program
Diversity Links	Look at https://www.africandigitalart.com/	James Barnor. Black British photographer who mixed photojournalism with fashion photography- great composition of photos for the children to look at. @JoeKenneth_ Captivating pictures from around the globe, Joe Kenneth's Instagram feed is nothing short of a millennial cultural trip; from classic London to gondolas in Venice and every beautiful thing in between.	Katherine Johnson Her work as a mathematician and "human computer" was critical to the success of the NASA US Space Programme in the 1950s and 60s. She was keen to learn quickly and asked lots of questions in her role at NASA, which led to her working on the project to get people into space. She researched using geometry for space travel and ultimately her analyses were used to send people to the Moon.
Vocabulary	Device, information technology, computers, barcode,	Photograph, device, camera, landscape, portrait, focus, light, edit, composition, adjust, effect, flash, artificial light, image	Robot, beebot, command, instruction, sequence, algorithm, program, outcome, predict, debug, artefact, decomposition
Evidence	L2- sorting of IT uses document L3- sorting of global IT uses L5- Matching of rules L6- Poster	Photos saved to class server	L3- Predictions L6- Debugging worksheet

Computing Intent

Year 1/2 CYCLE B	Lent 2		Pentecost 1	Pentecost 2
Topic	Data and Information 2 **Pictograms**		Creating Media 2b **Making music**	Programming **Programming quizzes**
(National Curriculum)	• use technology purposefully to create, organise, store, manipulate and retrieve digital content • 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		• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content	• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • Create and debug simple programs • Use logical reasoning to predict the behaviour of simple programs • Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Core Knowledge	1. Know that we can count and compare objects using tally charts. Know that data is information we collect. Know that is is important to organise data for effective counting a comparing. 2. Know that objects can be represented as pictures. Know that objects represented as pictures are called pictograms. Know why it is easier to use a computer to create a pictogram rather than drawing one. 3. Know how to create a pictogram on a computer.		1. Know that music can generate emotions. Know how to use correct vocabulary from a word bank to describe pieces of music. Know how to identify differences in pieces of music. 2. Know that there are patterns in music and this is called rhythm. Know how to create a rhythm pattern. Know how to play an instrument following a rhythm pattern. 3. Know that sound can be created on a computer.	Lesson 1 is a recall lesson on scratch Jr for Year 1's this will be new knowledge. 1. Know that a sequence of commands has a start. Know that in ScratchJr a program must begin with the green flag start block. Know how to confidently run a program. 2. Know a sequence of commands has an outcome. Know the outcome is the result of the commands. Know how to create programs which produce different outcomes.

Computing Intent

Know how to convert data from a tally chart into a pictogram. Know the benefits of different data collection methods. 4. Know that an attribute is a way of describing an object e.g. colour or size. Know how to select objects by a common attribute. Know how to make comparisons about an attribute. 5. Know that people can be described by attributes. Know how to collect data on people using an attribute. Know how to draw a conclusion from data collected. 6. Know that data was be presented in different ways on a computer. Know how to present data in a tally, pictogram and bar chart on a computer. Know when information can be shared and when it can't.	Know how to change the pitch of a sound on a computer. Know how to create a sound to reflect an image. 4. Know how to create a musical pattern using a computer. Know that music is a sequence of notes. Know how to refine and improve a musical pattern after it has been created. 5. Know how to create music for a purpose. Know that the musical rhythm needs to reflect the image. Know how to explain how the musical rhythm reflects the image. 6. Know how to review and refine a final piece of music. Know how to listen back to a piece of music and make improvements. Know how to explain how a piece of music has been improved using the correct vocabulary.	3. Know how to create a program based on a given design. Know how to use the start on tap and go to page blocks. Know how to choose the blocks needed for a sequence. 4. Know how to change a given design. Know how to change the background on a design. Know how to create a program based on a new design. 5. Know how to independently create a program. Know how to create an algorithm for a program. Know how to increase the number of blocks used and create a more complex program. 6. Know how to improve a project. Know how to compare a project to a design and make improvements. Know how to independently debug a program.
Wider Knowledge	Know how to enter data on a computer. Know how to use a tally chart to collect data. Know how to suggest appropriate headings for tally charts and pictograms. know how to construct a given comparison question. Know how to use computer programs to present information in different ways.	Know that human create music. Know that a computer can be used to play sounds of different instruments. Know that the same pattern can be represented in different ways. Know how to compare playing music on instruments with making music on a computer.	Know that a series of instructions is known as a sequence. Know that a program is an algorithm written in language a computer can understand. Know that the programming blocks need to be joined together in ScratchJr to make the program run.

Computing Intent

Skills	Enter data onto a computer. Recognise that people, animals and objects can be described by attributes. Use a computer to view data in different forms. Use pictograms to answer single attribute questions. Use a computer to answer comparison questions	Experiment with musical patterns on a computer. Experiment with different sounds on a computer. Use a computer to create a musical pattern. Use a computer to compose a rhythm and a melody on a given theme. Use a computer to play the same music in different ways e.g. tempo. Evaluate a musical composition created on a computer.	Trace a sequence to make a prediction. Test a prediction by running the sequence. Create and debug a program Run a program on a device.
Diversity Links		Link to Pharrell Williams- own music and producer	
Vocabulary	Data, attribute, object, tally chart, pictogram	Rhythm, pattern, music,	Block, code, command, instructions, sequence, algorithm, program, debug, run, select, background, character, sprite, design, project
Evidence	Worksheets and J2e screenshots	Assessment only	L6- give chn screenshot of their saved project printed out- chn to annotate

Year 3/4 CYCLE A	Advent 1	Advent 2	Lent 1
Topic	Computing systems and Networks 3 **Connecting Computers**	Programming A3 **Sequencing sounds**	Programming B3 **Events and Actions**

Computing Intent

			NC:
Core Knowledge (National Curriculum)	• use sequence, selection, and repetition in programs; work with variables and various forms of input and output • 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 • 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 goals, including collecting, analysing, evaluating and presenting data and information	• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs • 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 goals, including collecting, analysing, evaluating and presenting data and information	• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • **Use sequence, selection** and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work, and to detect an correct errors in algorithms and programs
Core knowledge	1. Know how digital devices function Know that a digital device is a device which has more capability than turning off and on. Know that a digital device can accept an input and produce an output. 2. know how to identify an input and output device. Know the relationship between an input and an output.	1. Know how to use the programming environment Scratch Know that there are different objects in Scratch e.g. sprites, backdrops. Know how Scratch is linked to ScratchJr 2. Know that commands have an outcome.	1. Know the relationship between events and actions – that an event will cause an action. Know how to choose different events to create different actions. Know how to improve on given actions to make them more effective. 2. Know how to create a program to move a sprite in multiple directions.

Computing Intent

		Know that an input can have multiple outputs e.g. starting a video produces an output from the camera and speaker. 3. Know how digital devices impact the way we work. Know the similarities and differences between digital and non-digital devices. Know how using a digital device can be more efficient and give examples of this. 4. Know that a computer network can be used to share information. Know that there are many ways computer devices can be connected e.g. wires, Wi-Fi and mobile networks. Know how messages can be passed through multiple networks. 5. Know how digital devices can be connected. Know that there are key network components including a server and wireless access points. Know the benefits of networking computers. 6. Know the physical components of a network. Know how devices in a network are connected. Know that there are networked devices in school and name them.	Know that each sprite is controlled by chosen commands. Know how to create a program following a design. 3. Know that programs can start in different ways using the event blocks. Know that sequences can be created by joining blocks of code together. Know that objects will respond exactly to the code. 4. Know that a sequence of commands can have an order. Know what a sequence is. Know that sequence order can and can't be important. 5. Know how to independently build a sequence of commands. Know how to combine motion and sounds in one sequence. Know how to change the design of my project for a purpose. 6. Know how to create a project from a task description. Know the objects needed for a project. Know how to copy a code from one sprite to the other.	Know how to create and duplicate a program. Know to create, duplicate and modify a program. 3. Know how to use a programming extension to adapt a program. Know how to set up a program to start in the same place each time it run. Know why it is important that a program begins in the same place each time it is run. 4. Know how to add further features to develop a program. Know how to predict the function of new blocks. Know how to choose suitable blocks and test their effectiveness. 5. Know that to debug means to identify and fix errors in a program. Know how identify errors in a program and begin to fix them. Know how to identify and fix errors in a program and explain how this has improved the effectiveness of a program. 6. Know how to design and create a program based on a design task. Know how to create a program based on a template. Know how to justify design choices and use debugging to evaluate the effectiveness of a program.
	Wider Knowledge	Know what an input is. Know that a process acts on the inputs	Know that programs start because of an input.	Know that an action is what sprite will do.

Computing Intent

		Know that an output is produced by the process. Know how changing the process can affect the output. Know how computer systems can change the way we work. Know that a digital device is made up of several parts. Know that computers can be connected to each other. Know the benefits of computer networks.	Know that a program includes sequences of commands. Know that the sequence of a program is a process. Know that the order of commands can affect a program's output. Know that different sequences can achieve the same output. Know that different sequences can achieve different outputs.	Know an event is what happens to create the action e.g. pressing the up key to move a sprite forward. Know how to control multiple sprites in the same project. Know how to change the sizing of a sprite. know how to extend my program to show an intended outcome. Know how to consider the real word in my design choices. Know how to explain why a program is effective.
	Skills	Identify input and output devices Explain that a computer system accepts an input and processes it to produce an output. Explain how a computer can be used to share information. Explain the roles of a switch server, and wireless access point in a network. Identify network devices around me. Explain how networks can be connected to other networks.	Build a sequence of commands. Combine commands in a program. Order commands in a program. Create a sequence of commands to produce a given outcome.	Build a sequence of commands to create a program. Choose appropriate keys to create events. Explain why the keys chosen are appropriate. Order commands in a program. Explain how the order of commands impacts a program. Identify bugs within a program. Fix errors by debugging Explain why this can improved on the effectiveness of a program.
	Diversity Links	Mark Dean Mark Dean worked at IBM for over 30 years, and was a key pioneer in the invention of PCs and their ability to communicate with other devices. His work also led to the development of computer plug-ins such as	Look at Rodney Jerkins	

Computing Intent

	disk drives and printers. He holds 20 patents and made computing accessible to all.		
Vocabulary	Input, process, output, connections, network, server, wireless access point	Blocks, motion block, sound block, event block, sequence, sprite, algorithm, code, program, design	Events, action, sequence, sprite, pen block, code
Evidence	Exploring inputs and outputs worksheet School network scavenger hunt worksheet	Saved scratch project	Saved scratch project

Year 3/4 CYCLE A	Lent 2	Pentecost 1	Pentecost 2
Topic	Creating Media 3a **Animation**	Data information **Branching databases**	Creating media **Desktop publishing**
(National Curriculum)	• **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 goals, including collecting, analysing, evaluating, and presenting data and information	• 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 goals, including collecting, analysing, evaluating and presenting data and information • use technology safely, respectfully and responsibly	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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 goals, including collecting, analysing, evaluating, and presenting data and information
Core Knowledge	1. Know that an animation is a sequence of drawings or photographs. Know a flip book is a type of animation.	1. Know that yes/no questions are a type of data collector. Know how yes/no questions can separate objects into groups.	1. Know how text and images convey messages. Know the differences between text and images.

St Augustine's Long Term Plan

Computing Intent

Column 1

Know that there needs to only be a small change in each image.

2. Know that aminated movement is a sequence of images.
Know that an animated movement is a sequence of images playing one after the other.
Know why little changes are needed for each frame.

3. Know how to plan an animation.
Know how to break a story into smaller parts.
Know breaking a story into smaller parts is called decomposing.

4. Know that when taking images on a digital device for animation the device needs to be in a fixed position.
Know how to use onion framing in stop motion.
Know why onion skinning is effective in animation.

5. Know how to use feedback to improve an animation.
Know how to use feedback to make changes to my animation.
Know how using the correct vocabulary will back feedback given more valuable.

6. Know how to add other media and effects to create a final film.
Know how to use transitions to create a smoother animation.

Column 2

Know how yes/no questions can be used to identify and compare objects.

2. Know how to create a tree structure using multiple yes/no questions.
Know that the more yes/no questions asked the larger the tree structure
Know that selecting more than one attribute to identify objects is the first step to creating a tree structure.

3. Know that a tree structure created on an online database tool is called a branching database.
Know how to arrange objects into a branching structure.
Know how to test a branching database to see if it works.

4. Know why it is important for a database to be well structured.
Know how to compare two branching databases.
Know how that questions need to be ordered carefully so that the objects are split into similarly sized groups.

5. Know how to plan the structure of a branching database.
Know how to create a physical representation of a branching database.
Know how to think of questions that will enable them to separate a group of objects.

6. Know how to create an identification tool.
Know how to use a plan to create an identification tool.

Column 3

Know the disadvantages and advantages of using text and images.

2. Know how text and layout can be edited on a desktop publishing app
Know how to change the font, size and colour of text.
Know how the style of text can have different impacts on the reader e.g. larger bold text draws the attention of the reader.

3. Know how to edit the page settings on a desktop publishing app.
Know what a placeholder is.
Know why placeholders are important.

4. Know how to add content to a desktop publishing app.
Know how to confidently use the copy and paste function.
Know how to make changes to content after I've added it.

5. Know that different layouts of content have different purposes.
Know different types of layout e.g. letters, newspapers.
Know how to choose a suitable layout for a given purpose.

6. Know the benefits of desktop publishing
Know how desktop publishing is used in the real world.
Know how to compare work made on a desktop publisher and work created by hand.

Computing Intent

		Know how this identification tool could have real-world uses.	
Wider Knowledge	Know that animations can be created on and off screen. Know how animations have changed over time. Know how to capture an image on a digital device. Know why a clear background is important. Know how to create a storyboard. Know how to review a sequence of frame. Know how to explain how adding different media has improved my animation.	Know that the word property and attribute are interchangeable Know that an attribute includes its name and a value e.g. red ball 'colour' is the attribute name and red is the attribute value. Know how to identify attributes that yes/no questions can be asked about e.g. colour Know that a data set can be structured using yes/no questions. Know that a subgroup is a group of objects made from an original group. Know how to repeatedly create subgroups of objects. Know how a branching database is an identification tool. Know that a well-structured branching database will enable you to identify objects using fewer questions.	Know word, adobe spark and publisher are desktop publishing apps Know that page orientation can be portrait and landscape. Know how to move, resize and rotate images. Know how to add a placeholder. Know how to choose fonts and apply effects to texts. Know how to use a range of keyboard shortcuts e.g. copy and paste, undo, redo Know how to edit work for a particular effect.
Skills	Set up the work area with an awareness of what will be captured. Plan an animation using a storyboard. Capture an image on a digital device. Use the onion skinning tool to review subject position. Move a subject between captures. Review a captured sequence of frames as an animation. Remove frames to improve an animation. Add media to enhance an animation Review a completed project.	Investigate questions with yes/no answers Create questions with yes/no answers Choose questions that will divide objects into evenly sized subgroups. Identify an object using a branching database Retrieve information from different levels of the branching database. Relate two levels of a branching database using AND Suggest real-world applications for branching databases.	Change page orientation Organise text and image placeholders in a page layout Add and remove image to and from placeholders Edit text in a placeholder

Computing Intent

Diversity Links	Handel Euguene- helped with the animation on Spider-man Homecoming, and Black Panther		When searching for images online for the magazine front cover, link to Alan Emtage. The Black Technologist who invented ARCHIE, the first Internet search engine
Vocabulary	Animation, stop frame animation, frame, onion skinning, sequence, consistent, character, event, setting	Database, branching database, attributes, pictogram	Text, images, font, templates, orientation, placeholders
Evidence	iMotion video on ipads	Screenshots/annotations of j2e database	Saved publisher document onto class server

Year 3/4 CYCLE B	Advent 1	Advent 2	Lent 1
Topic	Computing systems and Networks 4 **The Internet**	Creating media **Audio production**	Programming **Repetition in shapes**
(National Curriculum)	• 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 • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • Select, use, and combine a variety of software (including internet	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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 goals, including collecting, analysing, evaluating, and presenting data and information • Use technology safely, respectfully, and responsibly; recognise	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Computing Intent

	services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given 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 concerns about content and contact.	acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• 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 goals, including collecting, analysing, evaluating and presenting data and information
Core Knowledge	1. Know how networks physically connect to other networks. Know that the internet is a network of networks, and the worldwide web is one of these. Know that a network needs protecting. 2. Know how networked devices make up the internet. Know that the internet is used to provide many services. Know that the worldwide web contains websites and webpages. 3. Know how websites can be shared via the worldwide web. Know where websites are stored. Know a variety of ways to access websites on the worldwide web. 4. Know how content can be added and accessed on the worldwide web.	1. Know that audio needs an input to record (microphone) and output to hear it (speaker) Know how to identify the input and output on a device. Know what makes a good piece of audio recording e.g. low background noise. 2. Know that audio recordings can be edited. Know how to inspect an audio file to trim. Know how to recognise errors in an audio file, trim and delete them. 3. Know that there are different parts to a podcast project. Know how to import sound effects and audio recording. Know how to align an audio recording and sound effect.	1. Know that accuracy in programming is important. Know that in logo you type commands rather than use coding blocks like Scratch. Know a code snippet is a part of a longer code. 2. Know how to create a program in a text-based language. Know how to turn an algorithm into a program code. Know how to independently debug a code. 3. Know what repeat means in coding. Know how to identify a pattern in a sequence where a repeat loop can be used instead. Know the different between a repeat loop and a count-controlled loop. 4. Know how to modify a count-controlled loop.

Computing Intent

	Know the keys parts of a website. Know how to add content to the worldwide web. 5. Know that content on the worldwide web is made by people and can be protected through copyright. Know how copyright is like ownership in the real world. Know what you can and can't do with copyrighted material. 6. Know that not everything on the worldwide web is true. Know how to identify if information on the worldwide web is accurate. Know why it is important to think before we share on the worldwide web.	4. Know how to apply audio editing skills. Know how to edit and trim voice recordings. Know how to edit, trim and align voice recordings. 5. Know how to enhance a podcast project. Know that a podcast can be enhanced by sound effects and background music. Know how to add content to a podcast project. 6. Know how to evaluate a podcast project. Know an effective podcast is one where sounds are combined seamlessly. Know how to independently make edits to a podcast project.	Know how a shape will change when the controlled loop is changed. Know how to trace a code to predict its outcome. 5. Know how to use decomposition. Know that decomposition means breaking a problem down into smaller parts. Know a procedure is a code snippet which can be named and reused. 6. Know how to independently create a program which uses count-controlled loops. Know how to design a program and turn this into a code. Know how to develop a program by independently debugging it.
Wider Knowledge	Know how networks connect to other networks Know that the global interconnection of networks is the internet Know that security is needed on the internet, Know how to access the worldwide web Know that the internet enables us to view the world wide web	Know that sound can be recorded Know that recorded audio can be stored on a computer. Know that audio can be edited. Know that sound can be represented visually as a waveform. Know that audio can be layered so that multiple sounds can be played at the same time. Know that there is a difference between saving an audio file and exporting an audio file. Know how to consider the results of editing choices made.	Know what repeat means Know how to identify everyday tasks that include repetition as part of a sequence e.g. brushing teeth or dance move. Know that we can use a loop command in a program to repeat instructions. Know how to identify a loop within a program. Know that in programming there are indefinite loops and count-controlled loops. Know that an indefinite loop will run until the program is stopped. Know that a loop can be programmed to stop after a specific number of times.

Computing Intent

Skills	Describe the types of content media that can be added, created and shared on the world wide web. Evaluate the reliability of content and the consequences of unreliable content. Explain the benefits of the world wide web.	Record sound using a computer. Play recorded audio Import audio into a project Delete a section of audio Change the volume of tracks in a project	List an everyday task as a set of instructions including repetition. Use an indefinite loop to produce a given outcome. Use a count-controlled loop to produce a given outcome. Plan a program that includes appropriate loops Recognise tools that enable more than one process to be run at the same time. Create two or more sequences that run at the same time.
Diversity Links	Link to Alan Emtage. The Black Technologist who invented ARCHIE, the first Internet search engine (Also mentioned in Year 5/6 unit)	Give example of Black in Science- a podcast dedicated to celebrating the work and lives of black people in the sciences	
Vocabulary	Network, internet, world wide web, router, website, secure		Logo, repeat, algorithm, code, debug , procedure, count-controlled loop, chunk, code snippets,
Evidence	Features of a website worksheet Who does this belong to worksheet Summative assessment	Podcast segments saved from audacity to server	Project saved from logo on server

Year 3/4	Lent 2	Pentecost 1	Pentecost 2
Topic	Data information	Creating Media 4b	Programming

Computing Intent

	Data logging	Photo Editing	Repetition in games
(National Curriculum)	• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • 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 goals, including collecting, analysing, evaluating, and presenting data and information	• 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 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 concerns about content and contact	• -Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs • 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 goals, including collecting, analysing, evaluating and presenting data and information
Core Knowledge	1. Know that data can be gathered over time can be used to answer questions. Know which type of data is best collected over time e.g. temperature. Know which types of questions can be answered by given data,	1. Know that the composition of digital images can be changed. Know how to crop and rotate an image. Know why an image may need to be cropped. 2. Know that colours can be changed in digital images.	1. Know how count-controlled loops can be used in scratch. Know how to link everyday task which require repetition to loops. Know how loops in Scratch compare to loops in logo.

Computing Intent

2. Know how to use a digital device to collect data automatically.
Know a sensor is a type of input designed to allowed computers to capture data from the physical environment.
Know which type of data can be collected from a sensor e.g. a microphone can collect sound data.

3. Know that a data logger collected data points from sensors over time.
Know that sensors can be connected to data loggers, which automatically collect data while not attached to a computer.
Know how to connect a data logger to a computer and download the data.

4. Know how a computer can help analyse data.
Know how to open a data file and use software to find out key information.
Know that there are different ways to view data.

5. Know the data needed to answer a question.
Know which questions can be answered by data loggers.
Know that a data logger needs to be set up to check that a plan will work.

Know how to experiment with different colour effects.
Know how different colour effects can make the view think and feel different things.

3. Know how cloning can be used in photo editing.
Know how to use the clone and retouching tools in a photo editing app.
Know how to use cloning tools to make edits as unnoticeable as possible.

4. Know how images can be combined.
Know how to use tools to select and copy parts of an image.
Know why photos might be edited.

5. Know how to combine images for a purpose.
Know how to apply photo editing skills to create an independent image.
Know how to select, open and edit a range of images to create an independent project.

6. Know how to improve editing on a image.
Know how to use feedback to improve editing skills.
Know how to publish a final image.

2. Know the difference between infinite loops and count-controlled loops.
Know when each type of loop is best suited.
Know that some programming languages enable more than one process to be run at once.

3. Know how to create a design that includes 2 or more loops which run simultaneously.
Know how to make 2 programs run together when the event block is clicked.
Know how to evaluate the effectiveness of a repeated sequence.

4. Know how to modify an infinite loop in a given program.
Know how to identify which parts of a loop can be changed.
Know how to re-use and modify code blocks within loops and explain changes made.

5. Know how to design a project which includes repetition.
Know how to design a project based on a model.
Know how explain what a design will look like.

6. Know how to create a project that include repetition.
Know how to build a program which follows a design.

Computing Intent

	6. Know how to use data from sensors to answer questions. Know how to access and review collected data. Know the benefits of using a data logger.		Know how to refine an algorithm and include multiple loops.
Wider Knowledge	Know the types of questions that can be answered using a table of data. Know data that can be logged over time Know sensors are input devices Know that a data logger captures 'data points' from sensors over time.	Know that images seen online may be edited. Know that digital images can be changed for different purposes. Know that digital images can be manipulated. Know which editing tool to use choose to give a desired effect. Know the impact of changes made on the quality of an image.	Know that scratch is a programming platform. Know how scratch is similar to scratchJr used in Key stage 1. Know how to identify patterns in a sequence. Know how to identify a loop within a program. Know that patterns in a sequence e.g. step 3 times is the same as step, step, step. Know when to use a loop and when not to. Know the importance of instruction order in a loop.
Skills	Use a digital device to collect data automatically Choose how often to automatically collect data samples. Use a set of logged data to find information. Use a computer program to sort data by one attribute. Export information in different formats.	Use an application to change the whole of a digital image, Use an application to add to the composition of a digital image. Change the composition of a digital image by rotating and flipping. Change the composition of a digital image by cropping Adjust colours of a digital image. Apply filters to a digital image. Use clone, copy and paste to change the composition of a digital image.	List an everyday task as a set of instructions including repetition. Use an indefinite loop to produce a given outcome. Use a count-controlled loop to produce a given outcome. Plan a program that includes appropriate loops Recognise tools that enable more than one process to be run at the same time. Create two or more sequences that run at the same time.
Diversity Links		Look at art work from Jade Purple Brown- great examples of using colour effectively.	Link to Clarence 'Skip' Ellis. Contributed to object based programming software.

Computing Intent

Vocabulary	Data, information, sensor, data points, data sets, logging intervals	Digital image, retouch, original vs edited, text, light, colour, border, shape, crop, clone stamp,	Repetition, infinite loop, count controlled loop
Evidence	Data saved onto Arduino/Google Science journal Data collection report L6	Photos saved onto class server	Project saved from scratch onto class server

Year 5/6 CYCLE A	Advent 1	Advent 2	Lent 1
Topic	Computer systems and Networks 5 **Systems and searching**	Programming A5 **Selection in physical computing**	Programming B5 **Selection in quizzes**
(National Curriculum)	NC: - 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 - Use search technologies effectively, appreciate how results are selected	NC: - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with	NC: - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection and repetition in programs; work with variables and various forms of input and output

Computing Intent

	and ranked, and be discerning in evaluating digital content	variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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 goals, including collecting, analysing, evaluating, and presenting data and information	• Use logical reasoning to explain how some simple algorithms work, and to detect an correct errors in algorithms and programs • 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 goals, including collecting, analysing, evaluating, and presenting data and information
Core knowledge	1. Know that a computer system is: A combination of hardware and software that can have data input to it, which it then processes and outputs. It can be programmed to perform a variety of tasks Know the different components of a system. Know how the components of a system work together. 2. Know how larger computer systems work. Know that there is a human element to computer systems. Know the reasons a computer system can benefit us.	1. Know that a crumble control is a type of microcontroller. Know that you can make a simple circuit connected to a computer. Know how to use infinite loops independently. 2. Know that count controlled loops are: a command that repeatedly runs a defined section of code a predefined number of times. Know that more than one output can be connected to a circuit. Know how to write a program which include count-controlled loops independently. 3. Know how to write programs which use an input as a condition.	1. Know how selection is used in computer programs. Know how to identify conditions within a program. Know how to modify a condition in a program. 2. Know that a conditional statement connects a condition to an outcome. Know how to use the 'if…then…else structure in algorithms and programs. Know how to identify outcomes and conditions in a program. Know how to write a program using selection with two outcomes. 3. Know how selection directs the flow of a program.

Computing Intent

3. Know that there are two methods of searching online: using a search engine and using the address bar. Know that searches need to be specific. Know how to return the quickest result from an internet search. 4. Know how a search engine selects results. Know that a web crawler is a type of bot operated by search engines. Know the role of a web crawler in creating an index. 5. Know that search engines rank results. Know how to order a list by rank. Know that search engines have a ranking criteria. 6. Know that search engines can be influenced. Know how to influence the results of a search engine. Know that there is a link between influenced search engine results and financial gain for the search engine.	Know that a condition is either true or false. Know that a loop with a condition is called a condition-controlled loop. 4. Know that selection is: part of a program where if a condition is met, then a set of commands is run Know that selection follows the 'if…then' structure. Know that infinite repetition is needed to repeatedly check is a condition has been met. 5. Know how to design a physical project which includes selection. Know real-world examples of selection. Know how to describe a project using correct terminology. 6. Know how to create a program that controls a physical computing project. Know how to use selection to produce the intended outcome. Know that it is important the test and debug a program.	Know how to create an algorithm in a branching structure. Know how to test a branching structure algorithm in a program. 4. Know how to design a program which uses selection. Know how to identify questions and outcomes within my algorithm. Know how to identify which outcomes will be selected. 5. Know how to create a program which uses selection. Know how test and debug my program. Know how to explain how I have improved my algorithm through testing the program. 6. Know how to evaluate the effectiveness of a program. Know how to create a set up for my program. Know why a program set up is needed when using selection.
Wider Knowledge	Know that computers can be connected together to form IT systems. Know the input and out of a search engine. Know that data can be transferred between IT systems. Know that a search engines are examples of large IT systems.	Know the components that be connected to a microcontroller e.g. switch, LED Know how to create a condition-controlled loop. Know how to use a condition in an 'if…then..' statement to start an action.	Know that conditions are statements that need to be met for a set of actions to be carried out. Know when the condition is met is referred to as true. Know when the condition is not met it is referred to as false.

Computing Intent

		Know that different search terms produce different results. Know how to evaluate the results of search terms.	Know how to use selection to switch the program of follow in one of two ways. Know how to use a condition in an "if…then…else..' statement to produce given outcomes.	Know that the condition is the answer to the question. Know that condition can be used in loops. Know that a loop can be used to repeatedly check whether a condition has been met. Know that when decisions are made in a program these are called selections. Know that selections are implemented in a program using 'if' statement. Know the importance of instruction order in 'if…then…else' statements. Know how to give appropriate feedback to my peers. Know how to act on feedback given. Know how to explain how feedback has improved a program.
	Skills	Recognise that a system is a set of interconnected parts which work together. recognise inputs, processes and outputs in large IT systems. Explain why search engines create indices, and that are different for each search engine. Explain that ranking orders search results to make the more useful. Explain how ranking is determined by rules, and that different search engines use different rules.	Explain that a condition can only be true or false. Relate that a count-controlled loop contains a condition. Compare a count- controlled loop with a condition-controlled loop. Explain that a condition- controlled loop will stop when a condition is met. Explain that when a condition is met, a loop will complete a cycle before it stops. Explain that selection can be used to branch the flow of a program Explain that a loop can be used to repeatedly check whether a condition has been met.	Explain that condition can only be true or false Choose a condition to use in a program. Create a condition-controlled loop. Use a condition in an if…then… statement to start an action. Use selection to switch program flow. Use 'if..then…else... to switch program flow in one of two ways.
	Diversity Links	Link to Alan Emtage. The Black Technologist who invented ARCHIE, the		Kimberley Bryant

Computing Intent

	first Internet search engine (Also mentioned in Year 4 unit)		Kimberley Bryant is the founder of Black Girls Code – an organisation that encourages Black girls to pursue careers in technology, and gives them the skills they need to do this. After discovering that there were no suitable courses for her daughter to study coding and having a similar experience herself at that age, Bryant established Black Girls Code to empower girls – especially those from minority populations – to get involved in STEM. The organisation aims to teach a million Black girls to code by 2040, and has taught 3,000 to date.
Vocabulary	System, Small-scale system, large-scale systems, transfer, packet, address, rank, search engine	Physical computing, microcontroller, crumble, component, output device, conditions, action, algorithm, program, input device, repetition, conditions (if, then), infinite loop, count controlled loop	Selection, condition, program, programming, algorithm, binary, binary question (yes or no answer)
Evidence	Sending information worksheet	Photo evidence of chn using crumbles saved onto server	Scratch project saved onto class server

Year 5/6 CYCLE A	Lent 2	Pentecost 1	Pentecost 2
Topic	Creating media **Vector Graphics**	Data and information **Flat-file data bases**	Creating media **Video Production**
Core Knowledge	NC: • Select, use and combine a variety of software (including internet services) on a range of digital devices to	NC: • Use search technologies effectively, appreciate how results are selected	NC: • Use search technologies effectively, appreciate how results are selected and

Computing Intent

(National Curriculum)	design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information	and ranked, and be discerning in evaluating digital content • 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 goals, including collecting, analysing, evaluating, and presenting data and information	ranked, and be discerning in evaluating digital content • 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 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 concerns about content and contact • Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour
Core knowledge	1. Know that vector drawing is a computer graphic made from shapes and lines. Know a range of tools used in vector drawings. Know how a vector drawing differs from a paper drawing. 2. Know how to create a vector drawing. Know shapes and lines used in a vector drawing are called objects. Know how to move, resize, rotate and change the colour of objects used.	1. Know how to create a paper database and order, sort and group this data. Know how to use a form to record information. Know how to a paper database can be used to answer questions. 2. Know that a flat-file database is a collection of data organised in a simple table and that is consists of 'records' and 'fields' Know how to navigate a flat-file database.	1. Know that video is the recording, reproducing, or broadcasting of moving visual images. Know how to identify features of videos. Know how to compare features in different videos. 2. Know how to use a digital device to record video. Know how to ensure the microphone on the device is near the person speaking.

Computing Intent

Know how to use multiple tools at the same time.
3. Know tools e.g. zoom can be used to increase the complexity of a vector drawing.
Know how to use the zoom and alignment grid tools.
Know how using these tools improve consistency in a vector drawing.
4. Know that vector drawings consist of layers.
Know how to identify the layers within a vector drawing.
Know how to use multiple layers to create an image.
5. Know how to use the select and duplicate tools.
Know how to duplicate objects.
Know how to reuse a group of objects.
6. Know how to create a vector drawing for a specific purpose.
Know how to combine tools previously used.
Know how to compare a vector drawing to a freehand paint drawing.

Know how to choose which field to sort data by to answer a given question.
3. Know how to use grouping and sorting data to answer questions.
Know how to group information using a database.
Know how to explain that data can be group using chosen values.
4. Know how to use tools to select specific data.
Know how to identify which field value are required to answer a given question.
Know how to use 'and' and 'or' to refine data selection.
5. Know how to create charts from data to answer questions.
Know that computer programs can be used to compare data visually.
Know how to explain the benefits of using a computer to create charts,
6. Know how to effectively use a real-world database and present findings.
Know how to ask questions that will need more than one field to answer.
Know how to refine a search in a real-life database

Know how camera angles can be used for different purposes.
3. Know that different video techniques can have different impacts.
Know there are different video techniques e.g. zoom
Know how these techniques impact a video's meaning and review the impact of these.
4. Know that a storyboard is used to plan a video.
Know how to break a video down into scenes and plan how these will be filmed.
Know how to plan different camera angles and filming techniques into scenes.
5. Know that a video can be improved through reshooting and editing.
Know how to import video into a video editing software.
Know how to select the correct tools to make edits to my video,
6. Know how to make final edits and publish a video project.
Know that choices made in the final edit will impact the quality of the final outcome.

Computing Intent

			Know how a video project can be shared with others.
Wider Knowledge	Know how to use the main drawing tools within a drawing application. Know how duplicating can save time. Know how to use tools to achieve a desired effect. Know how to use tools to develop a vector.	Know that the term 'database' means a collection of organised data that is stored on a computer. Know that records are sets of data on a particular object. Know that a field is one specific piece of data in a database record e.g. a record all about a country may have fields such as 'country name' or 'country population' Know that operands are the questions asked about a database. Know that a record is similar to a heading on a non-chronological report and a field is similar to the subheadings. Know how to use grouping and sorting data records based on different fields e.g. by colour Know that in Year ¾ we used the term attributes which included its name and value. Know that in this unit attribute names becomes the fields.	Know which devices can and can't record video. Know the purpose of a story board. Know that videos can be edited on a recording device or on a computer. Know the limitations of editing a video on a recording device. Know that video projects need to be regularly reviewed and reflected upon. Know that projects need to be exported and shared.
Skills	Add an object to a vector drawing. Select one object or multiple objects. Delete objects. Group and ungroup selected objects. Move objects between the layers of a drawing. Duplicate objects using copy and paste. Modify objects Reposition objects.	Choose different ways to view data. Choose which attribute and value to search by to answer a given question. Ask questions that need more than one attribute to answer. Choose which attribute to sort data by to answer a given question. Choose multiple criteria to search data to answer a given question.	Use different camera angles Use pan, tilt and zoom filming techniques Combine filming techniques for a given purpose Determine what scene will convey your idea Decide what changes to make when editing Choose to shoot a scene or improve later through editing Use split, trim and crop to edit a video

Computing Intent

	Combine options to achieve a desired effect.		
Diversity Links	Katherine Johnson Her work as a mathematician and "human computer" was critical to the success of the NASA US Space Programme in the 1950s and 60s. She was keen to learn quickly and asked lots of questions in her role at NASA, which led to her working on the project to get people into space. She researched using geometry for space travel and ultimately her analyses were used to send people to the Moon.		History of film (Lesson 1) Noble Johnson. Contemporary example-Reggie Yates. Started off presenting and went into screenwriting and directing.
Vocabulary	Vector, drawing tool, object (each element of a vector drawing) resize, rotate, alignment grid, resize handle	Data base, flat-file database, record, fields, chart, filter	Video, audio, visual, export, edit, record, framing, microphone, integrated, audiovisual, volume, lens, zoom, angle, pan (movement), transition effect
Evidence	Saved vector drawing/annotations	Saved database/annotations onto class server	Saved videos onto class server

Year 5/6 CYCLE B	Advent 1	Advent 2	Lent 1
Topic	Computer Systems and networks **Communication and collaboration**	Creating Media **Web Page Creation**	Programming **Variables in games**
(National Curriculum)	NC • 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 • Select, use and combine a variety of software (including internet services) on a range of digital	NC: • Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • 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	NC: • Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • Use sequence, selection, and repetition in programs; work with

Computing Intent

		devices to design and create a range of programs, systems and content that accomplish given 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 concerns about content and contact	accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. • use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour.	variables and various forms of input and output • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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 goals, including collecting, analysing, evaluating and presenting data and information
Core knowledge		1. Know how computers can communicate with each other. Know that data is transferred through protocols – which are agreed methods. Know the link between the DNS and website addresses. 2. Know how data is transferred across the internet. Know that large amounts of data can broken down into packets which make them easier to transfer. Know the different parts of a packet: the header and the data payload. 3. Know how the internet can be used to work together online.	1. Know the features of a 'good' website. Know that a 'good' website will have different types of media and will be easily accessible. Know that websites are written in HTML – (Hypertext Markup Language) and this is the code used the create a webpage. 2. Know the common features of a webpage. Know how to compare different webpages. Know that webpages are created for a purpose. 3. Know that it is important to consider to copyright when creating a webpage.	1. Know that a variable can be changed. Know that a variable is a named piece of data, normally a number or text. Know that variables which are letters are called strings. 2. Know that variables are used in programs as placeholders in memory e.g. a game always starts at zero, Know how to name a variable. Know how to update variables. 3. Know that editing variables can improve a game. Know how to predict the outcome of changing a variable.

Computing Intent

Know that files can be stored online and how to access them. Know the benefits of working collaboratively online. 4. Know how to reuse and modify files stored online. Know that working together on the internet can be public or private. Know the importance of checking copyright laws before modifying work online. 5. Know that the internet can be used to communicate online. Know that there are different ways of communicating online. Know how different ways of communicating online can fit different purposes. 6. Know how to stay safe when communicating online. Know what appropriate and inappropriate communication is online. Know how to consider privacy, age restrictions and information security when communicating online.	Know how to check to the copyright of an image. Know what the term fair use means. 4. Know how to preview a webpage before publishing. Know how to add simple content to a webpage. Know how to edit content on a webpage based on previewing it. 5. Know that a navigation path is how web pages are linked together. Know how to link web pages using hyperlinks. Know how to describe the importance of navigation path. 6. Know why linked web pages work best when created by the same person. Know how to evaluate the user experience of a website. Know how to link external web pages to a webpage.	Know how changing the variable in a game can change the difficulty of a game. 4. Know how to use design level in abstraction. Know that levels of abstraction are the steps to creating a project. Know how to explain design choices. 5. Know how to choose a name which identifies a variable. Know the importance of naming a variable. Know how to add multiple variables to a project. 6. Know how to evaluate a project. Know how to identify ways a project can be improved. Know how to add variables to a project based on feedback.
Wider Knowledge	Know that there are opportunities that technology offers for communication and collaboration. Know a group of interconnected computing devices is called a network. Know which types of media can be shared through the internet.	Know that there is a relationship between HTML and visual display. Know that webpages can contain different media types. Know that web pages are written by people. Know that a website is a set of hyperlinked web pages.	Know how to identify different examples of information that is variable e.g. a football match score during a match. Know that a variable has a name and a value. Know that the value of a variable can be used by a program.

Computing Intent

	Know that communication and collaboration using the internet can be public or private.		Know that the value of a variable can be updated. Know that a variable can be set as a constant (fixed value) Know that if you change the value of a variable, you cannot access the previous value. Know that the name of a variable needs to be unique.
Skills	Outline methods of communicating and collaborating using the internet. Choose methods of internet communication and collaboration for given purposes. Evaluate different methods of online communication and collaboration. Decide what you should and should not share online.	Review an existing website (navigation bars, header) Create a new plank web page. Add text to a web page. Set the style of text on a web page. Change the appearance of text on web page Embed media in a web page. Add web pages to a website Insert hyperlinks between pages. Insert hyperlinks to another site	Identify a variable in an existing program. Experiment with value of an existing variable. Choose a name that identifies the roles of a variable to make it easier for humans to understand it. Decide where in a program to set a variable. Update a variable with a user input. Use the same variable in more than one location in a program.
Diversity Links	Marian R. Croak Marian R. Croak is the reason we can now make video calls to work from home and see friends and family all over the world without leaving the house. Her work in the 1990s contributed to the Voice Over Internet Protocol (VOIP). Today, she has over 200 patents and is a Vice President at Google. She is passionate about making sure Artificial Intelligence is used responsibly and to have a positive impact on society.		
Vocabulary	Transfer, data packets, header, data payload, addressing, IP address, Domain Name Server (DNS), protocol	HTML, website, copyright, fair use, layout, navigation path, links, hyperlinks, user experience	Variable, placeholder, program,, abstraction, design, change

Computing Intent

Evidence	Web page design L3 scanned in Choosing how to communicate worksheet	Word document with hyperlink to individual web pages saved onto class sever	Scratch project saved onto class server

Year 5/6 CYCLE B	Lent 2	Pentecost 1	Pentecost 2
Topic	Data and information **Spreadsheets**	Creating Media **3D modelling**	Programming **Sensing Movement**
(National Curriculum)	NC: 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 goals, including collecting, analysing, evaluating, and presenting data and information	NC: - 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 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 concerns about content and contact	NC: - Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts - Use sequence, selection, and repetition in programs; work with variables and various forms of input and output - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs - 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

Computing Intent

			content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • about content and contact
Core knowledge	1. Know that a spreadsheet is a type of computer software where data can be stored and analysed. Know that data can be words, numbers, dates, images, sounds Know that data can be stored in many ways. 2. Know the structure of a spreadsheet. Know how to format a cell. Know how to choose from a variety of formats. 3. Know how to produce calculated data using a formula. Know that numbers can be used in calculations but words cannot. Know that changing inputs in cell references can change the output of the calculation. 4. Know how to use the 4 operations to create formulas in a spreadsheet. Know how to use formulas for a range of cells. Know how duplicating apply a formula to multiple cells. 5. Know how to create a spreadsheet for a specific purpose. Know how to use a spreadsheet to answer questions.	1. Know that digital imagery can also be made in 3D Know that a 3D model is a 3-dimensional vector graphic Know how to view a 3D model from different perspectives and compare them. 2. Know how a 3D object can be modified. Know a 3D object can be resized, lifted and lowered. Know how to recolour a 3D shape. 3. Know how combine 3D shapes can create a new object. Know how to use grouping and duplicating. Know that 3D models can be printed using a 3D printer. 4. Know how to make a 3D model for a given purpose. Know that placeholders can create a hole in a 3D model. Know how to combine placeholders and duplicate to create a complete design. 5. Know the real-world use of 3D design. Know how architecture and 3D design are linked.	1. Know that a micro:bit is a controllable device. Know that a controllable device is one which pairs with a computer program to perform specific instructions. Know that a micro:bit can run a program similar to a crumbl. 2. Know that selection can control the flow of a program. Know that selection is a command which using it…then statements. Know how to use multiple selection statements to control the flow of a program. 3. Know that a variable can be updated using user input. Know that a variable is something changeable. Know that checking a variable doesn't change its value. 4. Know how to use conditional statements. Know why the order of a code is important. Know how to modify a code to achieve different outcomes. 5. Know how to create a design which includes inputs and outputs.

Computing Intent

	Know that it is important that data is organised. 6. Know that data can be presented in a variety of ways. Know why data presented in different ways is useful. Know how to present the same data in different ways based on the purpose.	Know how to create a design based on examples. 6. Know how to create a 3D digital model based on a design. Know how to suggest improvements based on a design brief. Know how to make independent improvements based on feedback.	Know how to use real-word objects to base a design on. Know how to describe a design using the correct terminology. 6. Know how to create a program which uses inputs and outputs based on a design. Know how to test a program against a design. Know how to use a range of approaches to find and fix bugs.
Wider Knowledge	Know that questions can be answered using spreadsheet data. Know what an item of data is in a spreadsheet. Know that there are different software tools to work with data. Know that formulas can be used to produce calculated data. Know that cells can be linked.	Know that 3D models can be created on a computer. Know that a 3D environment can be viewed from different perspectives. Know that digital tools can be used to manipulate 3D objects. Know that artefacts can be broken down into a collection of 3D objects.	Know that there are different examples of information that is variable e.g. a football score during a match. Know that a variable has a name and a value. Know that variables can hold numbers or letters Know that it is important to set up a variable at the start of a program.
Skills	Calculate data using a formula for each operation. Use functions to create new data Use existing cells within a formula. Choose suitable ways to present spreadsheet data.	Position 3D shapes relative to one another. Use digital tools to modify 3D objects. Combine objects to create a 3D digital model. To use digital tools to accurately size a 3D object. Construct a 3D model which reflects a real world object.	Identify a variable in an existing program. Experiment with the value of an existing variable. Choose a name that identifies the role of a variable to make it more usable to humans. Use a variable in a conditional statement to control the flow of a program.
Diversity Links		Walt W. Braithwaite Engineers today likely take computer-aided design (CAD) software for granted in helping them design everything from automobiles to phones and computers. Braithwaite joined Boeing in 1966 as an associate tool engineer	Roy Clay Roy Clay was a programmer who is often referred to as the Godfather of Silicon Valley, thanks to his contributions to the industry. His work shaped HP and technology, developing the HP 2116A

Computing Intent

		and by 1975 he was the senior engineer responsible for developing Boeing's use of computer technology in the design of airplanes. He supervised the engineering development of numerous Boeing aircraft including the 777, the first commercial aircraft to be designed entirely with CAD software.	minicomputer in the 1960s. He also established a number of programs to encourage and support people from minority backgrounds to get involved in technology and science.
Vocabulary	Spreadsheet, formula, cell, pie chart, line graph, input, output	3D, 3D model, hollow, placeholder, resize, rotate, group and ungroup, workplane	Input, process, output, program, algorithm, debug,
Evidence	Saved excel spreadsheet	Saved/annotated screenshot from tinkercad	Photo evidence of chn using micro:bits saved onto server