St Mary Magdalene's R.C Primary School
Computing Curriculum

Rationale	At St Mary Magdalene's, we want our pupils to be aware of how to stay safe online and use technology effectively and responsibly. Technology is every changing and we want our pupils to be confident, versatile and highly skilled when using technology to prepare them for future education and opportunities that is heavily reliant on technology. We want our pupils to be expressive with the wide range of technologies available to them and be adaptive in doing so.			
Approach	Our approach is to provide structured, challenging and enriching learning experiences using the strands of the Teach Computing curriculum: ➢ Computing systems and networks – understanding technology around us, how technology is useful in our lives and how computers can connect many people. ➢ Creating media – how technology is expressive through photos, audio productions and media edited purposefully ➢ Programming – how programming is a huge part of the things we love such as gaming and how bugs can present barriers but ones that can become addressed ➢ Data and information – how technology is used to present valuable information and this is important for many professions and industries. Teach Computing exposes pupils to a wide range of technologies that many children will already use and equips them with the skills to use technology purposefully and effectively. Online Safety is taught alongside the Teach Computing with clear links made throughout the Computing curriculum. Cohort related issues are addressed alongside the Online Safety areas recommended in line with the Teach Computing curriculum			
SEND	Our Computing curriculum allows all children, of all abilities, to thrive and showcase their already impressive Computing knowledge. Through an adaptive learning environment, children are challenged, whilst we ensure learning is accessible for all. Where EHCP and POP's targets link to the Computing curriculum, these are recorded and celebrated with the children to ensure all pupils make progress over the academic year.			
Online Safety	At St Mary Magdalene's, we want to equip our children with the skills to act appropriately and respectfully within the ever-changing online world. Our Online Safety curriculum is supported through Education for a Connected World and Project Evolve whilst also addressing any cohort related issues that may arise. Please find our Online Safety below our Computing curriculum.			
Computing Golden Threads	Computer systems and networks	Creating media	Programming	Data and information

EYFS

	Technology in our classroom	Pictures on a computer	Following and giving instructions
ELG	Listening, attention and understanding ➢ Make comments about what they have heard and ask questions to clarify their understanding. Personal, Social and Emotional Development ➢ 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 ➢ Share their creations, explaining the process they have used The Natural World ➢ Explore the natural world around them, making observations and drawing pictures of animals and plant	Personal, Social and Emotional Development ➢ Explain the reasons for rules, know right from wrong and try to behave accordingly. ➢ Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
Lesson sequence	1. To identify technology in the classroom 2. To use technology in the classroom safely 3. To explain what technology is used for	1. To use software to draw an animal 2. To add detail to a creation 3. To explain how you created your idea.	1. To explain movements made after programming a Bee Bot. 2. To give instructions for others to follow. 3. To use vocabulary to explain movements.

Year 1

	Autumn 1 Technology around us	Autumn 2 Digital painting	Spring 1 Moving a robot
National Curriculum objectives	➢ 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	➢ 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
Key knowledge	➢ Know what technology is ➢ Know how technology can help them in their everyday lives. ➢ Know the different components of a computer ➢ Know basic keyboard and mouse skills. ➢ Know some ways in which they can use technology responsibly.	➢ Know that a range of tools can be used for digital painting. ➢ Know how to use these tools to create their own digital paintings ➢ Know that inspiration can be taken from a range of artists' work. ➢ Know about their preferences when painting with and ➢ without the use of digital devices.	➢ Know early programming concepts ➢ Know what individual commands are ➢ Know how commands change what the floor robot does ➢ Know how to use what they know about commands to ➢ Know to start predicting the outcome of programs.
Key skills	➢ Locate examples of technology in the classroom ➢ Locate examples of technology in the wider world ➢ Switch on a computer ➢ Log into a computer ➢ Use a mouse to click and drag ➢ Click and drag to manipulate the cursor on the screen ➢ Save work to a provided file ➢ Type on a keyboard (name) ➢ Use the delete key to delete letters ➢ Open work from a file ➢ Use the arrow keys to move the cursor ➢ Recall elements of the school user agreement ➢ Explain what we have to do to stay safe and healthy when ➢ Using technology.	➢ Identify freehand tools and know what they do ➢ Draw lines on screen ➢ Make marks on screen ➢ Use the shape tool ➢ Use tools effectively and explain reasons for choices ➢ Create a recognisable picture ➢ Know how to change colours ➢ Know how to manipulate colours ➢ Mimic a given (artists) work ➢ Change colour and brush sizes ➢ Mimic artistic styles ➢ Compare digital and 'paper' images ➢ Evaluate own work ➢ State preferences.	➢ Match a command to an outcome ➢ Predict the outcome of a command on a device ➢ Run a command on a device ➢ Follow an instruction ➢ Give directions ➢ Program forwards and backwards commands ➢ Predict the outcome of a sequence ➢ Experiment with turn and move commands to move a robot ➢ Plan a sequence with up to four commands ➢ Debug a program ➢ Plan a program to solve a problem

Lesson sequence	1. To identify technology 2. To identify a computer and its main parts 3. To use a mouse in different ways 4. To use a keyboard to type on a computer 5. To use the keyboard to edit text 6. To create rules for using technology responsibly	1. To describe what different freehand tools do 2. To use the shape tool and the line tools 3. To make careful choices when painting a digital picture 4. To explain why I chose the tools I used 5. To use a computer on my own to paint a picture 6. To compare painting a picture on a computer and on paper	1. To explain what a given command will do 2. To act out a given word 3. To combine forwards and backwards commands to make a sequence 4. To combine four direction commands to make sequences 5. To plan a simple program 6. To find more than one solution to a problem
Knowledge capture task	What are the functions of a mouse and keyboard? How can we stay safe using technology?	What is different about a picture on a computer and on paper?	Can you explain how a Bee Bot moves?

	Spring 2 Grouping data	Summer 1 Digital writing	Summer 2 Programming animations
National Curriculum objectives	➢ 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 ➢ 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 ➢ Use technology purposefully to create, organise, store, manipulate and retrieve digital content
Key knowledge	➢ Know what data is ➢ Know what information is. ➢ Know why labelling, grouping, and searching are Know important aspects of data and information. ➢ Know that searching is a common operation in many applications. ➢ Know that to search data, it must have labels. ➢ Know how computers are able to group and present data	➢ Know how to use a computer to create and manipulate text. ➢ Know how to use a keyboard to enter and remove text. ➢ Know how to use a mouse to enter and remove text. ➢ Know how to change the look of their text. Know why they might want to manipulate the way text looks. ➢ Know the differences between using a computer to create text and writing text on paper. ➢ Know which method they prefer and explain their ➢ reasoning for choosing this.	➢ Know what on-screen programming looks like (ScratchJr). ➢ Know the way a project looks can be manipulated through ➢ Know the use of sprites and backgrounds. ➢ Know how to use programming blocks to use, modify, and create programs. ➢ Know the early stages of program design through the ➢ introduction of algorithms.
Key skills	➢ Label an object ➢ Label groups of objects ➢ Match objects to groups ➢ Count a group of objects ➢ Count objects ➢ Group objects	➢ Identify and find keys on a keyboard ➢ Open a word processor ➢ Recognise keys on a keyboard ➢ Enter text into a computer ➢ Use backspace to remove text ➢ Use letter, number, and space keys	➢ Compare different programming tools ➢ Find which commands to move a sprite ➢ Use commands to move a sprit ➢ Run my program ➢ Use a start block in a program ➢ Use more than one block by joining them together

	➢ Describe an object in different ways ➢ Identify the properties of an object ➢ Count objects with shared properties ➢ Group objects in different ways ➢ Group similar objects ➢ Choose how to group objects ➢ Record the number of objects in a group ➢ Compare groups of objects ➢ Decide how to group objects to answer a question ➢ Record and share findings	➢ Explain what the keys learnt about already do ➢ Identify the toolbar and use bold, italic, and underline ➢ Type capital letter ➢ Change the font ➢ Select all of the text by clicking and dragging ➢ Select a word by double-clicking ➢ Decide if changes have improved writing ➢ Say what tool was used to change the text ➢ Use 'undo' to remove changes ➢ Explain the differences between typing and writing ➢ Make changes to text on a computer ➢ Say why i prefer typing or writing	➢ Change the value ➢ Find blocks that have numbers ➢ Say what happens when i change a value ➢ Add blocks to each of my sprites ➢ Delete a sprite ➢ Show that a project can include more than one sprite ➢ Choose appropriate artwork for my project ➢ Create an algorithm for each sprite ➢ Decide how each sprite will move ➢ Add programming blocks based on my algorithm ➢ Test the programs i have created ➢ Use sprites that match my design
Lesson sequence	1. To label objects 2. To identify that objects can be counted 3. To describe objects in different ways 4. To count objects with the same properties 5. To compare groups of objects 6. To answer questions about groups of objects	1. To use a computer to write 2. To add and remove text on a computer 3. To identify that the look of text can be changed on a computer 4. To make careful choices when changing text 5. To explain why I used the tools that I chose 6. To compare typing on a computer to writing on paper	1. To choose a command for a given purpose 2. To show that a series of commands can be joined together 3. To identify the effect of changing a value 4. To explain that each sprite has its own instructions 5. To design the parts of a project 6. To use my algorithm to create a program
Knowledge capture task	Where do the objects go and what can we find out?	What are the differences with writing on computer and paper?	Can you create an algorithm?

Year 2

	Information technology around us	Digital photography	Robot algorithms
National Curriculum objectives	➢ 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
Key knowledge	➢ Know what information technology (IT) some examples of what IT is ➢ Know where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. ➢ Know how IT improves our world ➢ Know about the importance of using IT responsibly.	➢ Know that different devices can be used to capture ➢ photographs ➢ Know how to capture photos ➢ Know how to edit photos ➢ Know how to improve photos ➢ Know that images they see may not be real.	➢ Know how to give instructions in sequences ➢ Know that the use of logical reasoning can predict outcomes. ➢ Know how to give commands in different orders. ➢ Know how the order affects the outcome. ➢ Know about design in programming. ➢ Know how to develop artwork and test it for use in a program. ➢ Know how to design algorithms and then test those algorithms as programs and debug
Key skills	➢ Describe some uses of computers ➢ Identify examples of computers ➢ Identify that a computer is a part of it ➢ Identify examples of it ➢ Identify that some it can be used in more than one way ➢ Sort school it by what it's used for ➢ Find examples of information technology ➢ Sort it by where it is found ➢ Talk about uses of information technology ➢ Demonstrate how it devices work together ➢ Recognise common types of technology ➢ Say why we use it ➢ List different uses of information technology ➢ Say how rules can help keep me safe ➢ Talk about different rules for using it ➢ Explain the need to use it in different ways ➢ Identify the choices that i make when using it ➢ Use it for different types of activities	➢ Explain what i did to capture a digital photo ➢ Recognise what devices can be used to take photographs ➢ How to take a photograph ➢ Explain the process of taking a good photograph ➢ Explain why a photo looks better in portrait or landscape ➢ Format ➢ Take photos in both landscape and portrait format ➢ Discuss how to take a good photograph ➢ Identify what is wrong with a photograph ➢ Improve a photograph by retaking it ➢ Experiment with different light sources ➢ Explain why a picture may be unclear ➢ Explore the effect that light has on a photo ➢ Recognise that images can be changed ➢ Use a tool to achieve a desired effect ➢ Apply a range of photography skills to capture a photo	➢ Choose a series of words that can be enacted as a sequence ➢ Follow instructions given by someone else ➢ Give clear instructions ➢ Show the difference in outcomes between two sequences that consist of the same commands ➢ Use an algorithm to program a sequence on a floor robot ➢ Use the same instructions to create different algorithms ➢ Compare my prediction to the program outcome ➢ Follow a sequence ➢ Predict the outcome of a sequence ➢ Explain the choices i made for my mat design ➢ Identify different routes around my mat ➢ Test my mat to make sure that it is usable ➢ Create an algorithm to meet my goal ➢ Explain what my algorithm should achieve ➢ Use my algorithm to create a program ➢ Plan algorithms for different parts of a task

		➢ Identify which photos are real and which have been changed ➢ Recognise which photos have been changed ➢	➢ Put together the different parts of my program ➢ Test and debug each part of the program"
Lesson sequence	1. To recognise the uses and features of information technology 2. To identify the uses of information technology in the school 3. To identify information technology beyond school 4. To explain how information technology helps us 5. To explain how to use information technology safely 6. To recognise that choices are made when using information technology	1) To use a digital device to take a photograph 2) To make choices when taking a photograph 3) To describe what makes a good photograph 4) To decide how photographs can be improved 5) To use tools to change an image 6) To recognise that photos can be changed	1. To describe a series of instructions as a sequence 2. To explain what happens when we change the order of instructions 3. To use logical reasoning to predict the outcome of a program 4. To explain that programming projects can have code and artwork 5. To design an algorithm 6. To create and debug a program that I have written
Knowledge capture task	How is IT important to our lives?	Things I can do with a photo...	How can you make a robot move?

	Pictograms	Making music	Programming quizzes
National Curriculum objectives	➢ 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
Key knowledge	➢ Know what the term data means ➢ Know how data can be collected in the form of a tally chart ➢ Know the term 'attribute' ➢ Know how to use attributes to help them organise data ➢ Know how to presenti data in the form of pictograms and finally block diagrams.	➢ Know how to use a computer to create music. ➢ Know how music can make them think and feel. ➢ Know how to compare creating music digitally and non-digitally. ➢ Know to look patterns in music ➢ Know how to purposefully create music.	➢ Know that sequences of commands have an outcome ➢ Know to make predictions based on their learning ➢ Know to use and modify designs to create their own quiz questions ➢ Know how to use blocks of code

Key skills	➢ Compare totals in a tally chart ➢ Record data in a tally chart ➢ Represent a tally count as a total ➢ Enter data onto a computer ➢ Use a computer to view data in a different format ➢ Use pictograms to answer simple questions about objects ➢ Explain what the pictogram shows ➢ Organise data in a tally chart ➢ Use a tally chart to create a pictogram ➢ Answer 'more than'/'less than' and 'most/least' questions about an attribute ➢ Create a pictogram to arrange objects by an attribute ➢ Tally objects using a common attribute ➢ Choose a suitable attribute to compare people ➢ Collect the data i need ➢ Create a pictogram and draw conclusions from it ➢ Give simple examples of why information should not be shared ➢ Share what i have found out using a computer ➢ Use a computer program to present information in different ways	➢ Describe music using adjectives ➢ Identify simple differences in pieces of music ➢ Say what i do and don't like about a piece of music ➢ Create a rhythm pattern ➢ Explain that music is created and played by humans ➢ Play an instrument following a rhythm pattern ➢ Connect images with sounds ➢ Relate an idea to a piece of music ➢ Use a computer to experiment with pitch ➢ Explain how my music can be played in different ways ➢ Identify that music is a sequence of notes ➢ Refine my musical pattern on a computer ➢ Add a sequence of notes to my rhythm ➢ Create a rhythm which represents an animal i've chosen ➢ Create my animal's rhythm on a computer ➢ Explain how i changed my work ➢ Listen to music and describe how it makes me feel ➢ Review my work	➢ Identify that a program needs to be started ➢ Identify the start of a sequence ➢ Show how to run my program ➢ Change the outcome of a sequence of commands ➢ Match two sequences with the same outcome ➢ Predict the outcome of a sequence of commands ➢ Build the sequences of blocks i need ➢ Decide which blocks to use to meet the design ➢ Work out the actions of a sprite in an algorithm ➢ Choose backgrounds for the design ➢ Choose characters for the design ➢ Create a program based on the new design ➢ Build sequences of blocks to match my design ➢ Choose the images for my own design ➢ Create an algorithm ➢ Compare my project to my design ➢ Debug my program ➢ Improve my project by adding features
Lesson sequence	1. To recognise that we can count and compare objects using tally charts 2. To recognise that objects can be represented as pictures 3. To create a pictogram 4. To select objects by attribute and make comparisons 5. To recognise that people can be described by attributes 6. To explain that we can present information using a computer	1. To say how music can make us feel 2. To identify that there are patterns in music 3. To experiment with sound using a computer 4. To use a computer to create a musical pattern 5. To create music for a purpose 6. To review and refine our computer work	1. To explain that a sequence of commands has a start 2. To explain that a sequence of commands has an outcome 3. To create a program using a given design 4. To change a given design 5. To create a program using my own design 6. To decide how my project can be improved
Knowledge capture task	Can you create a pictogram?	Making musical patterns	Can you program a quiz?

Year 3

	Connecting computers	Stop-frame animation	Sequencing sounds
National Curriculum objectives	➢ 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	➢ 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.
Key knowledge	➢ Know how digital devices function ➢ Know what in input devices are ➢ Know what output devices are ➢ Know how digital devices can change the way we work ➢ Know how a computer network can be used to share information ➢ Know why we need a network switch ➢ Know how digital devices can be connected ➢ Know the role of a switch, server, and wireless access point in a network	➢ Know that animation is a sequence of drawings or ➢ Photographs ➢ Know that animated movement is a sequence of images ➢ Know why little changes are needed for each frame ➢ Know what a story board is ➢ Know why a story board is needed ➢ Know how to plan an animation ➢ Know what onion skinning is ➢ Know what different animation media are ➢ Know how to create a final film	➢ Know that programming environments can differ ➢ Know that objects in Scratch have attributes (linked to) ➢ Know that commands in Scratch are represented as blocks ➢ Know that commands have an outcome ➢ Know that a program has a start ➢ Know that a sequence of commands can have an order ➢ Know how to change the appearance of my project ➢ Know how to create a project from a task description
Key skills	➢ To follow a process ➢ Classify input and output devices ➢ Describe a simple process ➢ Design a digital device ➢ Recognise similarities and differences between using digital devices ➢ And non-digital tools ➢ Recognise different connections ➢ Demonstrate how information can be passed between devices	➢ Create an effective stop-frame animation ➢ Predict what an animation will look like ➢ Break down a story into settings, characters and events ➢ Create a storyboard ➢ Evaluate the quality of animation ➢ Review a sequence of frames to check work ➢ Use onion skinning to help me make small changes ➢ Between frames ➢ Evaluate another learner's animation	➢ Identify the objects in a scratch project (sprites, ➢ Backdrops) ➢ Choose a word which describes an on-screen action for ➢ Their plan ➢ Create a program following a design ➢ Identify that each sprite is controlled by the commands ➢ Chosen ➢ Create a sequence of connected commands

	➢ Identify networked devices around me ➢ Identify the benefits of computer networks	➢ Explore ways to make my animation better ➢ Improve my animation based on feedback ➢ Evaluate final film	➢ Explain that the objects in my project will respond exactly to the code ➢ Start a program in different ways ➢ Combine sound commands ➢ Explain what a sequence is ➢ Order notes into a sequence ➢ Build a sequence of commands ➢ Decide the actions for each sprite in a program ➢ Make design choices for my artwork ➢ Identify and name the objects i will need for a project ➢ Implement my algorithm as code ➢ Relate a task description to a design
Lesson sequence	1. To explain how digital devices function 2. To identify input and output devices 3. To recognise how digital devices can change the way that we work 4. To explain how a computer network can be used to share information 5. To explore how digital devices can be connected 6. To recognise the physical components of a network	1. To explain that animation is a sequence of drawings or photographs 2. To relate animated movement with a sequence of images 3. To plan an animation 4. To identify the need to work consistently and carefully 5. To review and improve an animation 6. To evaluate the impact of adding other media to an animation	1. To explore a new programming environment 2. To identify that commands have an outcome 3. To explain that a program has a start 4. To recognise that a sequence of commands can have an order 5. To change the appearance of my project 6. To create a project from a task description
Knowledge capture task	What are the functions of devices?	Can you plan and improve an animation?	Can you create a project using sounds?

	Branching databases	Desktop publishing	Events and actions in programs
National Curriculum objectives	➢ 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	➢ 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
Key knowledge	➢ Know how to create questions with yes/no answers ➢ Know the attributes needed to collect data about an object ➢ Know what a branching datatbase is ➢ Know how to create a branching database ➢ Know why it is helpful for a database to be well structured ➢ Know how to independently create an identification tool	➢ Know how text and images convey information ➢ Know that text and layout can be edited ➢ Know how to choose appropriate page settings ➢ Know that content can be added to a desktop publication ➢ Know how different layouts can suit different purposes ➢ Know what the benefits of desktop publishing might be	➢ Know how a sprite moves in an existing project ➢ Know how to create a program to move a sprite in four directions ➢ Know the relationship between an event and an action ➢ Know how to adapt a program to a new context ➢ Know how to develop a program by adding features ➢ Know how to identify and fix bugs in a program
Key skills	➢ Create two groups or objects separated by one attribute ➢ Investigate questions with yes/no answers ➢ Arrange objects into a tree structure ➢ Create a group of objects within an existing group ➢ Select an attribute to separate objects into groups ➢ Select objects to arrange into a branching database ➢ Test the database to see if it works ➢ Compare two branching database structures ➢ Use given attributes ➢ Create a physical version of a branching database ➢ Create questions to uniquely identify objects ➢ Create questions to use in a branching database ➢ Suggest real world uses	➢ Identify the advantages and disadvantages of using text and images ➢ Change font style, size, and colours for a given purpose ➢ Edit text ➢ Create a template for a particular purpose ➢ Define the term 'page orientation' ➢ Recognise placeholders and say why they are important ➢ Choose the best locations for content ➢ Make changes to content after i've added it ➢ Paste text and images to create a magazine cover ➢ Choose a suitable layout for a given purpose ➢ Identify different layouts and match a layout to a purpose ➢ Compare work made on desktop publishing to work ➢ Created by hand ➢ Identify the uses of desktop publishing in the real world	➢ Choose which keys to use for actions and explain my ➢ Choices ➢ Choose which keys to use for actions and explain my ➢ Choices ➢ Identify a way to improve a program ➢ Choose a character for my project ➢ Choose a suitable size for a character in a maze ➢ Program movement ➢ Choose blocks to set up my program ➢ Consider the real world when making design choices ➢ Use a programming extension ➢ Build more sequences of commands to make my design ➢ Work ➢ Choose suitable keys to turn on additional features ➢ Identify additional features (from a given set of blocks) ➢ Match a piece of code to an outcome ➢ Modify a program using a design ➢ Test a program against a given design ➢ Make design choices and justify them
Lesson sequence	1. To create questions with yes/no answers 2. To identify the attributes needed to collect data about an object 3. To create a branching database 4. To explain why it is helpful for a database to be well structured	1. To recognise how text and images convey information 2. To recognise that text and layout can be edited 3. To choose appropriate page settings 4. To add content to a desktop publishing publication	1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features

	5. To plan the structure of a branching database 6. To independently create an identification tool	5. To consider how different layouts can suit different purposes 6. To consider the benefits of desktop publishing	5. To identify and fix bugs in a program 6. To design and create a maze-based challenge
Knowledge capture task	Can you create a branching database?	What is a branching database?	Can you program a maze?

Year 4

	The internet	Audio production	Repetition in shapes
National Curriculum objectives	➢ 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 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 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 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
Key knowledge	➢ Know how networks physically connect to other networks ➢ Know how networked devices make up the internet ➢ Know why a network needs protecting ➢ Know how websites can be shared via the World Wide Web (WWW) ➢ Know how content can be added and accessed on the World Wide Web (WWW) ➢ Know how the content of the WWW is created by people ➢ Know the potential consequences of unreliable content	➢ Know that sound can be recorded ➢ Know that audio recordings can be edited ➢ Know the different parts of creating a podcast project ➢ Know how to apply audio editing skills independently ➢ Know how to combine audio to enhance their podcast project	➢ Know how to plan commands to create shapes and ➢ patterns ➢ Know how to modify commands to create shapes and ➢ patterns ➢ Know how to test commands to create shapes and ➢ patterns. ➢ Know how to Logo, a text-based programming language.
Key skills	➢ Describe the internet as a network of networks ➢ Discuss why a network needs protecting	➢ Identify the input and output devices used to record and ➢ Play sound ➢ Use a computer to record audio	➢ Create a code snippet for a given purpose ➢ Explain the effect of changing a value of a command ➢ Program a computer by typing commands

	➢ Describe networked devices and how they connect ➢ Explain that the internet is used to provide many services ➢ Recognise that the world wide web contains websites and web ➢ Pages ➢ Describe how to access websites on the www ➢ Describe where websites are stored when uploaded to the www ➢ Explain the types of media that can be shared on the www ➢ Explain that internet services can be used to create content online ➢ Explain what media can be found on websites ➢ Recognise that i can add content to the www ➢ Explain that there are rules to protect content ➢ Explain that websites and their content are created by people ➢ Suggest who owns the content on websites ➢ Explain that not everything on the world wide web is true ➢ Explain why i need to think carefully before i share or reshare content ➢ Explain why some information i find online may not be honest, accurate, or legal	➢ Discuss what sounds can be added to a podcast ➢ Inspect the soundwave view to know where to trim my ➢ Recording ➢ Re-record my voice to improve my recording ➢ Explain how sounds can be combined to make a podcast more engaging ➢ Plan appropriate content for a podcast ➢ Save my project so the different parts remain editable ➢ Improve voice recordings ➢ Record content following my plan ➢ Review the quality of my recordings ➢ Arrange multiple sounds to create the effect i want ➢ Explain the difference between saving a project and ➢ Exporting an audio file ➢ Open a project to continue working on it ➢ Choose appropriate edits to improve my podcast ➢ Listen to an audio recording to identify its strengths ➢ Suggest improvements to an audio recording	➢ Test my algorithm in a text-based language ➢ Use a template to create a design for my program ➢ Write an algorithm to produce a given outcome ➢ Identify everyday tasks that include repetition as part of a ➢ Sequence, e.g. Brushing teeth, dance moves ➢ Identify patterns in a sequence ➢ Use a count-controlled loop to produce a given outcome ➢ Choose which values to change in a loop ➢ Identify the effect of changing the number of times a task is ➢ Repeated ➢ Predict the outcome of a program containing a count-controlled ➢ Loop ➢ Explain that a computer can repeatedly call a procedure ➢ Identify 'chunks' of actions in the real world ➢ Use a procedure in a program ➢ Design a program that includes count-controlled loops ➢ Develop my program by debugging it ➢ Make use of my design to write a program
Lesson sequence	1. To describe how networks physically connect to other networks 2. To recognise how networked devices make up the internet 3. To outline how websites can be shared via the World Wide Web (WWW) 4. To describe how content can be added and accessed on the World Wide Web (WWW) 5. To recognise how the content of the WWW is created by people 6. To evaluate the consequences of unreliable content	1. To identify that sound can be recorded 2. To explain that audio recordings can be edited 3. To recognise the different parts of creating a podcast project 4. To apply audio editing skills independently 5. To combine audio to enhance my podcast project 6. To evaluate the effective use of audio	1. To identify that accuracy in programming is important 2. To create a program in a text-based language 3. To explain what 'repeat' means 4. To modify a count-controlled loop to produce a given outcome 5. To decompose a task into small steps 6. To create a program that uses count-controlled loops to produce a given outcome
Knowledge capture task	What is the internet and why is it important?	Can you create a podcast?	Can you create and recognise repetition in patterns?

	Data logging	Photo editing	Repetition in games
National Curriculum objectives	➢ 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
Key knowledge	➢ Know the senses that humans use to experience the environment ➢ Know how computers can use special input devices called sensors to monitor the environment ➢ Know how to collect data ➢ Know how toaccess data captured over long periods of time. ➢ Know what data points, data sets, and logging intervals are. ➢ Know how to use a computer to review and analyse data.	➢ Know how digital images can be changed and edited ➢ Know how they can then be resaved and reused ➢ Know the impact that editing images can have ➢ Know how to evaluate the effectiveness of their choices	➢ Know the concept of repetition in programming ➢ Know similarities between two environments. ➢ Know the difference between count-controlled and ➢ infinite loops ➢ Know how to modify existing animations and games using repetition.
Key skills	➢ Choose a data set to answer a given question ➢ Identify data that can be gathered over time ➢ Suggest questions that can be answered using a given data set ➢ Explain what data can be collected using sensors ➢ Identify that data from sensors can be recorded ➢ Use data from a sensor to answer a given question ➢ Identify the intervals used to collect data ➢ Recognise that a data logger collects data at given points ➢ Sort data to find information	➢ Explain why i might crop an image ➢ Improve an image by rotating it ➢ Use photo editing software to crop an image ➢ Experiment with different colour effects ➢ Explain that different colour effects make you think and feel ➢ Different things ➢ Explain why i chose certain colour effects ➢ Add to the composition of an image by cloning ➢ Identify how a photo edit can be improved ➢ Remove parts of an image using cloning ➢ Experiment with tools to select and copy part of an image ➢ Explain why photos might be edited	➢ List an everyday task as a set of instructions including repetition ➢ Modify a snippet of code to create a given outcome ➢ Predict the outcome of a snippet of code ➢ Choose when to use a count-controlled and an infinite loop ➢ Modify loops to produce a given outcome ➢ Recognise that some programming languages enable more than one process to be run at once ➢ Choose which action will be repeated for each object ➢ Evaluate the effectiveness of the repeated sequences used in my program

	➢ View data at different levels of detail ➢ Plan how to collect data using a data logger ➢ Propose a question that can be answered using logged data ➢ Use a data logger to collect data ➢ Draw conclusions from the data that i have collected ➢ Explain the benefits of using a data logger ➢ Interpret data that has been collected using a data logger	➢ Use a range of tools to copy between images ➢ Choose suitable images for my project ➢ Create a project that is a combination of other images ➢ Describe the image i want to create	➢ Explain what the outcome of the repeated action should be ➢ Explain the effect of my changes ➢ Identify which parts of a loop can be changed ➢ Re-use existing code snippets on new sprites ➢ Develop my own design explaining what my project will do ➢ Evaluate the use of repetition in a project ➢ Select key parts of a given project to use in my own design ➢ Build a program that follows my design ➢ Evaluate the steps i followed when building my project ➢ Refine the algorithm in my design
Lesson sequence	1. To explain that data gathered over time can be used to answer questions 2. To use a digital device to collect data automatically 3. To explain that a data logger collects 'data points' from sensors over time 4. To recognise how a computer can help us analyse data 5. To identify the data needed to answer questions 6. To use data from sensors to answer questions	1. To explain that the composition of digital images can be changed 2. To explain that colours can be changed in digital images 3. To explain how cloning can be used in photo editing 4. To explain that images can be combined 5. To combine images for a purpose 6. To evaluate how changes can improve an image	1. To develop the use of count-controlled loops in a different programming environment 2. To explain that in programming there are infinite loops and count-controlled loops 3. To develop a design that includes two or more loops which run at the same time 4. To modify an infinite loop in a given program 5. To design a project that includes repetition 6. To create a project that includes repetition
Knowledge capture task	Can you log and review data?	Can you combine images?	Can you create a project that includes repetition?

Year 5

	Sharing information	Video production	Selection in physical computing
National Curriculum objectives	➢ 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	➢ 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 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
Key knowledge	➢ Know that computers can be connected together to form systems ➢ Know the role of computer systems in our lives ➢ Know how to experiment with search engines ➢ Know how search engines select results ➢ Know why the order of results is important, and to whom	Know what makes a video effective digital devices that can record video ➢ Know how to capture video using a range of techniques ➢ Know how to create a storyboard ➢ Know that video can be improved through reshooting and editing ➢ Know the impact of the choices made when making and sharing a video	➢ Know what a microcontroller (Crumble controller) is ➢ Know how to connect and program it to control components (including output devices — LEDs and motors). ➢ Know conditions as a means of controlling the flow of actions in a program. ➢ Know how to use their knowledge of repetition and conditions ➢ Know when introduced to the concept of selection (through the 'if...then...' structure) ➢ Know how to write algorithms and programs that utilise this concept.
Key skills	➢ describe that a computer system features inputs, processes, and outputs ➢ explain that computer systems communicate with other devices ➢ explain that systems are built using a number of parts ➢ explain the benefits of a given computer system ➢ identify tasks that are managed by computer systems	➢ compare features in different videos ➢ explain that video is a visual media format ➢ identify features of videos ➢ experiment with different camera angles ➢ identify and find features on a digital video recording device ➢ make use of a microphone ➢ capture video using a range of filming techniques ➢ review how effective my video is ➢ suggest filming techniques for a given purpose	➢ create a simple circuit and connect it to a microcontroller ➢ explain what an infinite loop does ➢ program a microcontroller to make an LED switch on ➢ connect more than one output component to a microcontroller ➢ design sequences that use count-controlled loops ➢ use a count-controlled loop to control outputs ➢ design a conditional loop

	➢ identify the human elements of a computer system ➢ compare results from different search engines ➢ make use of a web search to find specific information ➢ refine a web search ➢ explain why we need tools to find things online ➢ recognise the role of web crawlers in creating an index ➢ relate a search term to the search engine's index ➢ explain that a search engine follows rules to rank results ➢ give examples of criteria used by search engines to rank results ➢ order a list by rank ➢ describe some of the ways that search results can be influenced ➢ explain how search engines make money ➢ recognise some of the limitations of search engines	➢ create and save video content ➢ decide which filming techniques I will use ➢ outline the scenes of my video ➢ explain how to improve a video by reshooting and editing ➢ select the correct tools to make edits to my video ➢ store, retrieve, and export a recording to a computer ➢ evaluate my video and share my opinions ➢ make edits to my video and improve the final outcome ➢ recognise that my choices when making a video will impact on the quality of the final outcome	➢ explain that a condition is either true or false ➢ program a microcontroller to respond to an input ➢ explain that a condition being met can start an action ➢ identify a condition and an action in my project ➢ use selection (an 'if…then…' statement) to direct the flow of a ➢ program ➢ create a detailed drawing of my project ➢ identify a real-world example of a condition starting an action ➢ test and debug a program ➢ use selection to produce an intended outcome
Lesson sequence	1. To explain that computers can be connected together to form systems 2. To recognise the role of computer systems in our lives 3. To identify how to use a search engine 4. To describe how search engines select results 5. To explain how search results are ranked 6. To recognise why the order of results is important, and to whom	1. To explain what makes a video effective 2. To use a digital device to record video 3. To capture video using a range of techniques 4. To create a storyboard 5. To identify that video can be improved through reshooting and editing 6. To consider the impact of the choices made when making and sharing a video	1. To control a simple circuit connected to a computer 2. To write a program that includes count-controlled loops 3. To explain that a loop can stop when a condition is met 4. To explain that a loop can be used to repeatedly check whether a condition has been met 5. To design a physical project that includes selection 6. To create a program that controls a physical computing project
Knowledge capture task	What is the purpose of a search engine and how does it work?	Can you create a video and explain changes you made?	How do you create a loop in a circuit?

National Curriculum objectives	Flat-file databases	Vector drawing	Selection in quizzes
	➢ Use search technologies effectively, appreciate how results are selected and	➢ Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of	➢ Design, write and debug programs that accomplish specific goals, including controlling

	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	programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information.	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
Key knowledge	➢ Know how a flat-file database can be used to organise data in records. ➢ Know how to use tools within a database to order and answer questions about data. ➢ Know how to create graphs and charts from their data to help solve problems. ➢ Know how to use a real-life database to answer a question, and present their work to others.	➢ Know to create vector drawings. ➢ Know that different drawing tools can help them create images ➢ Know that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. ➢ Know how to layer their objects and begin grouping and duplicating them to support the creation of more ➢ Complex pieces of work.	➢ Know how 'conditions' can be used in programming ➢ Know learning how the 'if… then… else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false' ➢ Know how to represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. ➢ Know how to write programs that ask questions ➢ Know how to use selection to control the outcomes based on the answers given..
Key skills	➢ Create a database using cards ➢ Explain how information can be recorded ➢ Order, sort, and group my data cards ➢ Choose which field to sort data by to answer a given question ➢ Explain what a field and a record is in a database ➢ Navigate a flat-file database to compare different views of information ➢ Combine grouping and sorting to answer specific questions ➢ Explain that data can be grouped using chosen values ➢ Group information using a database ➢ Choose multiple criteria to answer a given question ➢ Choose which field and value are required to answer a given question	➢ Discuss how vector drawings are different from paper-based drawings ➢ Experiment with the shape and line tools ➢ Recognise that vector drawings are made using shapes ➢ Explain that each element added to a vector drawing is an object ➢ Identify the shapes used to make a vector drawing ➢ Move, resize, and rotate objects ➢ Use alignment grids and resize handles to improve consistency ➢ Modify objects to create a new image ➢ Use the zoom tool to help me add detail to my drawings ➢ Change the order of layers in a vector drawing ➢ Identify that each added object creates a new layer in the drawing ➢ Use layering to create an image	➢ Identify conditions in a program ➢ Modify a condition in a program ➢ Recall how conditions are used in selection ➢ Create a program with different outcomes using selection ➢ Identify the condition and outcomes in an 'if... Then… else...' ➢ Statement ➢ Use selection in an infinite loop to check a condition ➢ Design the flow of a program which contains 'if… then… else…' ➢ Explain that program flow can branch according to a condition ➢ Show that a condition can direct program flow in one of two ways ➢ Identify the outcome of user input in an algorithm ➢ Test a program

	➢ Outline how 'and' and 'or' can be used to refine data selection ➢ Explain the benefits of using a computer to create charts ➢ Refine a chart by selecting a particular filter ➢ Select an appropriate chart to visually compare data ➢ Ask questions that will need more than one field to answer ➢ Present my findings to a group ➢ Refine a search in a real-world context	➢ Copy part of a drawing by duplicating several objects ➢ Reuse a group of objects to further develop my vector drawing	➢ Identify the setup code needed in a program ➢ Identify ways the program could be improved
Lesson sequence	1. To use a form to record information 2. To compare paper and computer-based databases 3. To outline how you can answer questions by grouping and then sorting data 4. To explain that tools can be used to select specific data 5. To explain that computer programs can be used to compare data visually 6. To use a real-world database to answer questions	1. To identify that drawing tools can be used to produce different outcomes 2. To create a vector drawing by combining shapes 3. To use tools to achieve a desired effect 4. To recognise that vector drawings consist of layers 5. To group objects to make them easier to work with 6. To apply what I have learned about vector drawings	1. To explain how selection is used in computer programs 2. To relate that a conditional statement connects a condition to an outcome 3. To explain how selection directs the flow of a program 4. To design a program that uses selection 5. To create a program that uses selection 6. To evaluate my program
Knowledge capture task	What is a database and can you create one?	What are vector drawings and why are they used?	Can you program using selection?

Year 6

	Internet communication	Webpage creation	Variables in games
National Curriculum objectives	➢ 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 ➢ Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	➢ 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 acceptable/unacceptable behaviour.	➢ 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
Key knowledge	➢ Know how computers use addresses to access websites ➢ Know that internet devices have addresses ➢ Know how data is transferred across the internet ➢ Know how sharing information online can help people to work together ➢ Know different ways of working together online ➢ Know how we communicate using technology	➢ Know how web pages can be structured ➢ Know that websites are written in HTM ➢ Know what copyright is and how it impacts on building ➢ Know web pages ➢ Know how and why web pages can be previewed. ➢ Know what a navigation path is ➢ Know the implications of linking to content owned by other people	➢ Know that a 'variable' is something that is changeable ➢ Know that the way a variable changes can be defined ➢ Know that a variable has a name and a value ➢ Know why a variable is used in a program ➢ Know how to improve a game by using variables ➢ Know how games can be improved
Key skills	➢ Recognise that data is transferred using agreed methods ➢ Explain that all data transferred over the internet is in packets ➢ Identify and explain the main parts of a data packet" ➢ Explain that the internet allows different media to be shared ➢ Recognise how to access shared files stored online ➢ Send information over the internet in different ways	➢ Explore a website ➢ Draw a web page layout that suits my purpose ➢ Recognise the common features of a web page ➢ Suggest media to include on my page ➢ Describe what is meant by the term 'fair use' ➢ Find copyright-free images ➢ Add content to my own web page ➢ Evaluate what my web page looks like on different ➢ Devices and suggest/make edits ➢ Preview what my web page looks like ➢ Describe why navigation paths are useful ➢ Explain what a navigation path is	➢ Identify examples of information that is variable ➢ Identify that variables can hold numbers or letters ➢ Identify a program variable as a placeholder in memory for a single value ➢ Recognise that the value of a variable can be changed ➢ Decide where in a program to change a variable ➢ Make use of an event in a program to set a variable ➢ Recognise that the value of a variable can be used by a program ➢ Choose the artwork for a project

	➢ Explain how the internet enables effective collaboration ➢ Recognise that working together on the internet can be public or private ➢ Choose methods of communication to suit particular purposes ➢ Explain the different ways in which people communicate ➢ Identify that there are a variety of ways to communicate over the internet ➢ Compare different methods of communicating on the internet ➢ Decide when i should and should not share information online ➢ Explain that communication on the internet may not be private	➢ Make multiple web pages and link them using ➢ Hyperlinks ➢ Create hyperlinks to link to other people's work ➢ Evaluate the user experience of a website ➢ Explain the implication of linking to content owned by others	➢ Create algorithms for my project ➢ Explain design choices ➢ Choose a name that identifies the role of a variable ➢ Create the artwork for my project ➢ Test the code that i have written ➢ Identify ways that my game could be improved ➢ Share my game with others ➢ Use variables to extend my game
Lesson sequence	1. To explain the importance of internet addresses 2. To recognise how data is transferred across the internet 3. To explain how sharing information online can help people to work together 4. To evaluate different ways of working together online 5. To recognise how we communicate using technology 6. To evaluate different methods of online communication	1. To know that websites have a structure 2. To know the features of a web page 3. To know what ownership is when using images (copyright) 4. To know the need to preview pages 5. To know need for a navigation path 6. To know the implications of linking to content owned by other people	1. To define a 'variable' as something that is changeable 2. To explain why a variable is used in a program 3. To choose how to improve a game by using variables 4. To design a project that builds on a given example 5. To use my design to create a project 6. To evaluate my project
Knowledge capture task	How does communication online work and what does it look like?	Can you create a website?	What are variables in games?

	Introduction to spreadsheets	3D modelling	Sensing
National Curriculum objectives	➢ 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	➢ 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

		behaviour; identify a range of ways to report concerns about content and contact	➢ 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
Key knowledge	➢ Know what a data set is ➢ Know how to build a data set ➢ Know what a formula is ➢ Know how to use formulas to produce calculated data ➢ Know which data types can be used in calculations ➢ Know how to apply formulas to data ➢ Know that changing inputs changes outputs ➢ Know how to create a spreadsheet to plan an event ➢ Know different ways that data can be presented.	➢ Know that you can work in three dimensions on a ➢ computer ➢ Know that digital 3D objects can be modified ➢ Know that objects can be combined in a 3D model ➢ Know how to create a 3D model for a given purpose ➢ Know how to plan their own 3D model ➢ Know how to create their own 3D model	➢ Know how to create a program to run on a controllable device ➢ Know that selection can control the flow of a program ➢ Know how to update a variable with a user input ➢ Know how to use a conditional statement to compare a variable to a value ➢ Know how to design and develop a project that uses inputs and outputs on a controllable device
Key skills	➢ Collect data ➢ Enter data into a spreadsheet ➢ Suggest how to structure my data ➢ Apply an appropriate format to a cell ➢ Choose an appropriate format for a cell ➢ Explain what an item of data is ➢ Construct a formula in a spreadsheet ➢ Apply a formula to multiple cells by duplicating it ➢ Calculate data using different operations ➢ Create a formula which includes a range of cells ➢ Apply a formula to calculate the data i need to answer questions ➢ Explain why data should be organised ➢ Use a spreadsheet to answer questions ➢ Produce a chart ➢ Suggest when to use a table or chart ➢ Use a chart to show the answer to questions	➢ Add 3d shapes to a project ➢ Move 3d shapes relative to one another ➢ View 3d shapes from different perspectives ➢ Lift/lower 3d objects ➢ Recolour a 3d object ➢ Resize an object in three dimensions ➢ Duplicate 3d objects ➢ Group 3d objects ➢ Rotate objects in three dimensions ➢ Accurately size 3d objects ➢ Combine a number of 3d objects ➢ Show that placeholders can create holes in 3d objects ➢ Analyse a 3d model ➢ Choose objects to use in a 3d model ➢ Combine objects in a design ➢ Construct a 3d model based on a design ➢ Explain how my 3d model could be improved ➢ Modify my 3d model to improve it	➢ Apply knowledge of programming to a new environment ➢ Test program on an emulator ➢ Transfer program to a controllable device ➢ Determine the flow of a program using selection ➢ Identify examples of conditions in the real world ➢ Use a variable in an if, then, else statement to select the flow of a program ➢ Experiment with different physical inputs ➢ Explain that checking a variable doesn't change its value ➢ Use a condition to change a variable ➢ Explain the importance of the order of conditions in else, if statements ➢ Modify a program to achieve a different outcome ➢ Use an operand (e.g. <>=) in an if, then statement ➢ Decide what variables to include in a project ➢ Design the algorithm for a project ➢ Design the program flow for a project ➢ Create and test a program based on my design ➢ Use a range of approaches to find and fix bugs

Lesson sequence	1. To create a data set in a spreadsheet 2. To build a data set in a spreadsheet 3. To explain that formulas can be used to produce calculated data 4. To apply formulas to data 5. To create a spreadsheet to plan an event 6. To choose suitable ways to present data	1. To recognise that you can work in three dimensions on a computer 2. To identify that digital 3D objects can be modified 3. To recognise that objects can be combined in a 3D model 4. To create a 3D model for a given purpose 5. To plan my own 3D model 6. To create my own digital 3D model	1. To create a program to run on a controllable device 2. To explain that selection can control the flow of a program 3. To update a variable with a user input 4. To use a conditional statement to compare a variable to a value 5. To design a project that uses inputs and outputs on a controllable device 6. To develop a program to use inputs and outputs on a controllable device
Knowledge capture task	What is a formula in a spreadsheet?	Create your own 3D model	How do inputs and outputs help with programming?

St Mary Magdalene's RC Primary School
Online Safety Curriculum

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Self-image and identity Online reputation	Online relationships	Online bullying Managing online information	Health, well-being and lifestyle	Privacy and security	Copyright and ownership
Y1	Copyright and ownership Health, well-being and lifestyle	Managing online information	Online bullying	Online relationships Online reputation	Privacy and security	Self-image and identity
Y2	Health, well-being and lifestyle	Self-image and identity	Online bullying Online reputation	Privacy and security	Copyright and ownership	Online relationships
Y3	Health, well-being and lifestyle	Copyright and ownership Managing online information	Online bullying	Privacy and security Online reputation	Online relationships	Self-image and identity
Y4	Health, well-being and lifestyle Online relationships	Copyright and ownership	Online bullying	Managing online information Online reputation	Self-image and identity	Privacy and security
Y5	Copyright and ownership	Managing online information Online reputation	Online bullying Online relationships	Privacy and security	Health, well-being and lifestyle	Self-image and identity
Y6	Managing online information Online reputation	Copyright and ownership Online relationships	Online bullying	Health, well-being and lifestyle	Privacy and security	Self-image and identity