MPPS Computing Curriculum Long Term Plan

This document shares the school's Computing curriculum narrative from Nursery to Year 6. It also shares in more detail knowledge, skills and vocabulary expected to be taught. NCCE materials, which have been funded by the DFE, are used to support the teaching of Computing. Whilst the EYFS Framework is structured differently to the national curriculum, we aim to show how Communication and Language, Literacy and Knowledge and Understanding of the world, feeds into the Computing national curriculum programmes of study.

Computing Long Term Planning (Using the NCCE teaching resources)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	As the EYFS frame work is structured differently to the national curriculum, the children are exposed to Computing across the year to help them in readiness for KS1 and the start of the Year 1 curriculum. Throughout the year, children are able to access computers, the Interactive Smart Boards, listening stations, iPads and the Holodeck. Children are able to see other technology outside of the classroom, including using the photocopier and taking photographs.					
Year 1	**Computing Systems and Networks – Technology Around Us** Children will recognise technology in school and they will learn about using it responsibly.	**Creating Media – Digital Painting** The children will look at a program where they will be able to choose appropriate tools to create art and make comparisons with working non-digitally.	**Programming A - Moving a Robot** The children will write a short algorithm and programs for floor robots, and predict the program outcomes.	**Data and information – Grouping information** The children will explore object labels, then using them to sort and group objects by properties.	**Creating Media – Digital Writing** The children will use a computer to create and format text. Once children have created a short piece of text, they will compare to writing non-digitally.	**Programming B Animation** The children will design and program the movement of a character on screen to tell stories.
Year 2	**Computing Systems and Networks – Information Technology Around Us** The children will identify IT recalling their knowledge from Year 1. They will also identify how its responsible use	**Creating Media- Digital Photography** The children will capture and change digital photographs for different purposes.	**Programming A – Robot Algorithms** The children will create and debug programs. They will also use logical reasoning to make predictions.	**Data and Information – Pictograms** The children will collect data in tally charts and use attributes to organise and present data on a computer.	**Creating Media – Making Music** The children will use a computer as a tool to explore rhythms and melodies, before creating a musical composition.	**Programming B Introduction to Quizzes** The children will design algorithms and programs that use events to trigger sequence of code to make an interactive quiz.

	improves our world in school and beyond.					
Year 3	**Computing Systems and Networks – Connecting Computers** The children identify that digital devices have inputs, process and outputs. They will also learn how devices can be connected to make assessments.	**Creating Media-Desktop Publishing** The children create documents by modifying text, images and page layouts for a specified purpose.	**Programming A – Sequence in Music** Creating sequences in a block-based programming language to make music	**Data and Information – Branching Databases** Building and using branching databases to group objects using yes/no questions.	**Creating Media – Stop Frame Animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story.	**Programming B Events and Actions** Writing algorithms and programs that use a range of events to trigger sequences of actions.
Year 4	**Computing Systems and Networks – The Internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content	**Creating Media- Photo Editing** Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	**Programming A – Repetition in shapes** Using a text-based programming language to explore count-controlled loops when drawing shapes.	**Data and Information – Data Logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation	**Creating Media – Audio Editing** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**Programming B Repetition in Games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
Year 5	**Computing Systems and Networks – Sharing Information** Identifying and exploring how information is shared between digital systems.	**Creating Media- Video Editing** Planning, capturing, and editing video to produce a short film.	**Programming A – Selection in Physical Computing** Exploring conditions and selection using a programmable microcontroller.	**Data and Information – Flat File Database** Using a database to order data and create charts to answer questions	**Creating Media – Vector Drawing** Creating images in a drawing program by using layers and groups of objects.	**Programming B Selection in Quizzes** Exploring selection in programming to design and code an interactive quiz.
Year 6	**Computing Systems and Networks – Communication**	**Creating Media- Web Creator**	**Programming A – Variables in Games**	**Data and Information – Spreadsheets**	**Creating Media – 3D Modelling**	**Programming B Sensing**

Recognising how the WWW can be used to communicate and be searched to find information.	Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Exploring variables when designing and coding a game.	Answering questions by using spreadsheets to organise and calculate data.	Planning, developing, and evaluating 3D computer models of physical objects	Designing and coding a project that captures inputs from a physical device.

Year 7 Computing Curriculum at Moor end Academy

E-safety	Web graphics	Kodu and Scratch	Microbit	Computational Thinking	App Development

Computing Curriculum Narrative in Detail (NEED TO DO EYF)

Early Years Framework
ELG: Communication and Language, Literacy and Knowledge and Understanding of the world
In EYFS, children are taught about the computers and their use inside and outside the classroom. Through continuous provision the children are able to access the computers, where they can access educational games, creative software and being able to listen to and watch stories. At times, children are able to access the listening station to use CD players to listen to stories and use the IWB to support their mark making, which can lead to writing. Additionally, children are able to use iPad and the Holodeck room, which supports their Understanding of the World. The Holodeck provides a range of scenarios and backdrops, which is used to share different aspects of the world: seasons, places, stories and other activities.

National Curriculum Key Stage 1

Key Stage 1 - Pupils should be taught to:

♣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

♣ 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.

Key Stage 2

Key Stage - Pupils should be taught to:

♣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

♣ 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.

Year 1-6 Curriculum in Detail

Year 1	National Curriculum	Objectives (From NCCE)	Skills (Based on NCCE Learning Graphs)
Computing systems and networks – Technology around us	• 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	• To identify technology • To identify a computer and its main parts • To use a mouse in different ways	To choose a piece of technology to do a job To recognise that some technology can be used in different ways To identify the main parts of a computer To use a mouse in different ways To use a keyboard to type

	help and support when they have concerns about content or contact on the internet or other online technologies.	• To use a keyboard to type on a computer • To use the keyboard to edit text • To create rules for using technology responsibly	To use the keyboard to edit text. To show how to use technology safely
Creating media – Digital painting	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To describe what different freehand tools do • To use the shape tool and the line tools • To make careful choices when painting a digital picture • To explain why I chose the tools I used • To use a computer on my own to paint a picture • To compare painting a picture on a computer and on paper	To create a picture using freehand tools To use shape and line tools when precision is needed To use a range of paint colours To use the fill tool to colour an enclosed area To use the undo button to correct a mistake To combine a range of tools to create a piece of artwork.
Programming A – Moving a robot	• 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	• To explain what a given command will do • To act out a given word • To combine forwards and backwards commands to make a sequence • To combine four direction commands to make sequences • To plan a simple program • To find more than one solution to a problem	To choose a series of words that can be enacted as a program To choose a series of words that can be run as a program To run a program on a device.
Data and information – Grouping data	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school	• To label objects • To identify that objects can be counted • To describe objects in different ways	To collect simple data To show that collected data can be counted To describe the properties of an object To choose an attribute to group objects by To group objects to answer questions

	National Curriculum	Objectives	Skills
		• To count objects with the same properties • To compare groups of objects • To answer questions about groups of objects	To explain that objects can be grouped by similarities (attribute) To describe a group of objects (based on commonality)
Creating media – Digital writing	• 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	• To use a computer to write • To add and remove text on a computer • To identify that the look of text can be changed on a computer • To make careful choices when changing text • To explain why I used the tools that I chose • To compare typing on a computer to writing on paper •	To use letter, number and Space keys to enter text into a computer To use punctuation and special characters To use the Backspace key to remove text To position the text cursor in a chosen location To use undo To choose options to achieve a desired effect To select text To change the appearance of text on a computer.
Programming B – Introduction to animation	• 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 • 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	• To find more than one solution to a problem • To show that a series of commands can be joined together • To identify the effect of changing a value • To explain that each sprite has its own instructions • To design the parts of a project • To use my algorithm to create a program	To explain what a command given can do To match a command to an outcome To choose a command for a given purpose To understand that a program is a set of commands a computer can run To build a sequence of commands in steps. To choose a series of words that can be enacted as a program To choose a series of words that can be run as a program To run a program on a device.
Year 2	**National Curriculum**	**Objectives**	**Skills**

Computing systems and networks – Information technology around us	• 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.	• To recognise the uses and features of information technology • To identify the uses of information technology in the school • To identify information technology beyond school • To explain how information technology helps us • To explain how to use information technology safely • To recognise that choices are made when using information technology	To describe some uses of computers To show how to use information technology safely To identify information technology in school To identify information technology beyond school.
Creating media – Digital photography	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school	• To use a digital device to take a photograph • To make choices when taking a photograph • To describe what makes a good photograph • To decide how photographs can be improved • To use tools to change an image • To recognise that photos can be changed	To capture a digital image To take photographs in both landscape and portrait frame To view photographs on a digital device To decide which photographs to keep To use filters to edit the appearance of a photograph To hold the camera still to take a clear photograph To use zoom to change the composition of a photograph To consider lighting before taking a photograph
Programming A – Robot Algorithms	• 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	• To describe a series of instructions as a sequence • To explain what happens when we change the order of instructions • To use logical reasoning to predict the outcome of a program (series of commands)	To choose a series of words that can be enacted as a sequence To choose a series of instructions that can be run as a program To create a program To trace a sequence to make a prediction To run a program on a device To debug a program that I have written

		• To explain that programming projects can have code and artwork • To design an algorithm • To create and debug a program that I have written	
Data and information – Pictograms	• 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	• To recognise that we can count and compare objects using tally charts • To recognise that objects can be represented as pictures • To create a pictogram • To select objects by attribute and make comparisons • To recognise that people can be described by attributes • To explain that we can present information using a computer	To show I can enter data onto a computer To recognise that people, animals and objects can be described by attributes. To show I can enter data onto a computer To use a computer to view data in different formats To use pictograms to answer single-attribute questions To use a computer to answer comparison questions (graphs, tables)
Creating media – Making Music	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• To say how music can make us feel • To identify that there are patterns in music • To show how music is made from a series of notes • To show how music is made from a series of notes • To create music for a purpose • To review and refine our computer work	To recognise that information on a computer can be stored To explain that information on a computer can be saved To explain that stored information can be retrieved, edited and resaved/ To recognise that people around me can view my screen to see my work To recognise that my word can be printed or shared. To recognise that my work can be shared between devices.
Programming B – Programming Quizzes	• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions	• To explain that a sequence of commands has a start • To explain that a sequence of commands has an outcome	To choose a series of words that can be enacted as a sequence To explain what happens when we change the order of 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 •	• To create a program using a given design • To change a given design • To create a program using my own design • To decide how my project can be improved	To choose a series of commands that can run as a program To trace a sequence to make a prediction To test a prediction by running the sequence To create and debug a program that I have written To run a program on a device

Year 3	National Curriculum	Learning Outcomes	Skills (Based on NCCE)
Computing systems and networks – Connecting Computers	• 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	• To explain how digital devices function • To identify input and output devices • To recognise how digital devices can change the way we work • To explain how a computer network can be used to share information • To explore how digital devices can be connected • To recognise the physical components of a network	**To identify input and output devices** **To explain that a computer system accepts input and processes to produce an output.** **To explain how a computer network can be used to share information** **To explain the role of a switch, server and wireless access point in a network.** **To identify network devices around me** **To explain how networks can be connected to other networks**
Creating media – Stop Motion	• 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	• To explain that animation is a sequence of drawings or photographs • To relate animated movement with a sequence of images • To plan an animation • To identify the need to work consistently and carefully • To review and improve an animation • To evaluate the impact of adding other media to an animation	To plan an animation using a storyboard To set up the work area with an awareness of what will be captured To capture an image To use the onion skinning tool to review subject position To move a subject between captures. To review a captured sequence of frames as an animation To remove frames to improve an animation To add media to enhance an animation To review a completed project

Programming A – Sequencing sounds	• 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 • 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	• To explore a new programming environment • To identify that commands have an outcome • To explain that a program has a start • To recognise that a sequence of commands can have an order • To change the appearance of my project • To create a project from a task description	To build a sequence of commands To combine commands in a program o order commands in a program To create a sequence of commands to produce a given outcome
Data and information – Branching databases	• 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	• To create questions with yes/no answers • To identify the object attributes needed to collect relevant data • To create a branching database • To explain why it is helpful for a database to be well structured • To identify objects using a branching database • To compare the information shown in a pictogram with a branching database	To retrieve information from different levels of the branching database To create questions with yes/no answers
Creating media – Desktop publishing	• 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	• To recognise how text and images convey information • To recognise that text and layout can be edited • To choose appropriate page settings	To show that page orientation can be changed To add text to a placeholder To organise text and image placeholders in a page layout

	National Curriculum	Outcomes	Skills
	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	• To add content to a desktop publishing publication • To consider how different layouts can suit different purposes • To consider the benefits of desktop publishing	To add and remove images to and from placeholders To edit text in a placeholder To move resize and rotate images To choose fonts and apply effects to text To review a document
Programming B – Events and Actions	• 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 • 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	• To explain how a sprite moves in an existing project • To create a program to move a sprite in four directions • To adapt a program to a new context • To develop my program by adding features • To identify and fix bugs in a program • To design and create a maze-based challenge	To build a sequence of commands To combine commands in a program To order commands in a program To create a sequence of commands to produce a given outcome

Year 4	National Curriculum	Outcomes	Skills
Computing systems and networks – The internet	• 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	• To describe how networks physically connect to other networks • To recognise how networked devices make up the internet • To outline how websites can be shared via the World Wide Web (WWW)	

	• 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	• To describe how content can be added and accessed on the World Wide Web (WWW) • To recognise how the content of the WWW is created by people • To evaluate the consequences of unreliable content	
Creating media – Audio editing	• 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	• To identify that sound can be digitally recorded • To use a digital device to record sound • To explain that a digital recording is stored as a file • To explain that audio can be changed through editing • To show that different types of audio can be combined and played together • To evaluate editing choices made	To record sound using a computer To play recorded audio To import audio into a project To delete a section of audio To change the volume of tracks in a project
Programming A – Repetition in shapes	• 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 • and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software	• To identify that accuracy in programming is important • To create a program in a text-based language • To explain what 'repeat' means • To modify a count-controlled loop to produce a given outcome • To decompose a task into small steps • To create a program that uses count-controlled loops to produce a given outcome	To list an everyday task as a set of instructions including repetition To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a given outcome To plan a program that includes appropriate loops to produce a given outcome To recognise tools that enable more than one process to be run at the same time (concurrency)

	(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		To create two or more sequences that run at the same time
Data and information – Data Logging	• 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	• To explain that data gathered over time can be used to answer questions • To use a digital device to collect data automatically • To explain that a data logger collects 'data points' from sensors over time • To use data collected over a long duration to find information • To identify the data needed to answer questions • To use collected data to answer questions	To use a digital device to collect data automatically To choose how often to automatically collect data samples To use a set of logged data to find information To use a computer program to sort data by one attribute To export information in different formats
Creating media – Photo editing	• 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	• To explain that digital images can be changed • To change the composition of an image • To describe how images can be changed for different uses • To make good choices when selecting different tools • To recognise that not all images are real • To evaluate how changes can improve an image	To recognise that digital images can be manipulated To recognise that images can be changed for different purposes To use the most appropriate tool for a particular purpose To recognise that not all images are real To consider the impact of changes made on the quality of the image To change the composition of an image To apply a change globally To apply changes locally To make additions
Programming B – Repetition in games	• Design, write and debug programs that accomplish specific goals, including controlling or simulating	• To develop the use of count-controlled loops in a different programming environment	To list an everyday task as a set of instructions including repetition

	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 • 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	• To explain that in programming there are infinite loops and count controlled loops • To develop a design that includes two or more loops which run at the same time • To modify an infinite loop in a given program • To design a project that includes repetition • To create a project that includes repetition	To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a given outcome To plan a program that includes appropriate loops to produce a given outcome To recognise tools that enable more than one process to be run at the same time (concurrency) To create two or more sequences that run at the same time

Year 5	National Curriculum	Learning Objectives	Skills
Computing systems and networks – Sharing 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 • 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	• To explain that computers can be connected together to form systems • To recognise the role of computer systems in our lives • To recognise how information is transferred over the internet • To explain how sharing information online lets people in different places work together • To contribute to a shared project online • To evaluate different ways of working together online •	To recognise that computers can be part of a system in an electronic device To understand that computers can be connected together to form systems To see that computers communicate with other devices (including other computers) To recognise input, process, and output in larger computer systems To recognise that connections between computers allow us to work together To explain that the internet lets people in different places work together

	• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact		
Creating media – Video editing	• 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	• To explain what makes a video effective • To identify digital devices that can record video • To capture video using a range of techniques • To create a storyboard • To identify that video can be improved through reshooting and editing • To consider the impact of the choices made when making and sharing a video	To use different camera angles To use pan, tilt and zoom To identify features of a video recording device or application To combine filming techniques for a given purpose To determine what scenes will convey your idea To decide what changes I will make when editing To choose to reshoot a scene or improve later through editing To use split, trim and crop to edit a video
Programming A – Selection in physical computing	• 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	• To control a simple circuit connected to a computer • To write a program that includes count-controlled loops • To explain that a loop can stop when a condition is met • To explain that a loop can be used to repeatedly check whether a condition has been met • To design a physical project that includes selection • To create a program that controls a physical computing project	To create a condition-controlled loop To use a condition in an 'if...then...' statement to start an action To use selection to switch the program flow in one of two ways To use a condition in an 'if...then...else...' statement to produce given outcomes

Data and information –Flat-File Databases	• 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	• To use a form to record information • To compare paper and computer-based databases • To outline how grouping and then sorting data allows us to answer questions • To explain that tools can be used to select specific data • To explain that computer programs can be used to compare data visually • To apply my knowledge of a database to ask and answer real-world questions	To navigate a flat-file database To design a structure for a flat-file database To choose different ways to view data To ask questions that need more than one attribute to answer To choose which attribute to sort data by to answer a given question To choose which attribute and value to search by to answer a given question (operands) To choose multiple criteria to search data to answer a given question (AND and OR) To select an appropriate graph to visually compare data To choose suitable ways to present information to other people
Creating media – Vector Drawing	• 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	• To identify that drawing tools can be used to produce different outcomes • To create a vector drawing by combining shapes • To use tools to achieve a desired effect • To recognise that vector drawings consist of layers • To group objects to make them easier to work with • To evaluate my vector drawing	To add an object to a vector drawing To select one object or choices made multiple objects To delete objects To move objects between the layers of a drawing To group and ungroup selected objects To duplicate objects using copy and paste To modify objects To reposition objects To combine options to achieve a desired effect To create a vector drawing for a given purpose
Programming B – Selection	• 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	• To explain how selection is used in computer programs • To relate that a conditional statement connects a condition to an outcome • To explain how selection directs the flow of a program • To design a program which uses selection	To experiment with a repeat-until loop To use a condition in an 'if... then…' statement to produce a given outcome To show that a condition can switch program flow in one of two ways To use a condition in an 'if... then... else...' statement to produce given outcomes

• 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	• To create a program which uses selection • To evaluate my program	

Year 6	National Curriculum	Learning Outcomes	Skills
Computing systems and networks – Internet Communication	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • 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	• To identify how to use a search engine • To describe how search engines select results • To explain how search results are ranked • To recognise why the order of results is important, and to whom • To recognise how we communicate using technology • To evaluate different methods of online communication	To recall how to use a search engine To compare the results from different search engines To demonstrate that different search terms produce different results To explain that search terms need to be chosen carefully To evaluate the results of search terms To identify that results from search engines can include adverts, and that the adverts can be targeted To identify different ways to communicate without technology To list methods of communicating using the internet To choose an appropriate method of internet communication for a given purpose To evaluate different methods of online communication To explain which types of media can be shared through the internet To explain that communicating through the internet can be public or private To decide what I should/should not share

			To classify internet communication by messenger and recipient or audience

Creating media – Webpage creation	• 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	• To review an existing website and consider its structure • To plan the features of a web page • To consider the ownership and use of images (copyright) • To recognise the need to preview pages • To outline the need for a navigation path • To recognise the implications of linking to content owned by other people	To review an existing website (navigation bars, header) To create a new blank web page To add text to a web page To set the style of text on a web page To embed media in a web page To change the appearance of text To add web pages to a website To insert hyperlinks to another site To insert hyperlinks between pages To preview a web page (different screen sizes)
Programming A – Variables in games	• 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 • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• To define a 'variable' as something that is changeable • To explain why a variable is used in a program • To choose how to improve a game by using variables • To design a project that builds on a given example • To use my design to create a project • To evaluate my project	To identify a variable in an existing program To experiment with the value of an existing variable To choose a name that identifies the role of a variable to make it easier for humans to understand it To decide where in a program to set a variable To update a variable with a user input To use an event in a program to update a variable To use a variable in a conditional statement to control the flow of a program To use the same variable in more than one location in a program

Data and information –Introduction to Spreadsheets	• 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	• To identify questions which can be answered using data • To explain that objects can be described using data • To explain that formulas can be used to produce calculated data • To apply formulas to data, including duplicating • To create a spreadsheet to plan an event • To choose suitable ways to present data	To calculate data using a formula for each operation To use functions to create new data To use existing cells within a formula To choose suitable ways to present spreadsheet data
Creating media – 3D modelling	• 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	• To use a computer to create and manipulate three-dimensional (3D) digital objects • To compare working digitally with 2D and 3D graphics • To construct a digital 3D model of a physical object • To identify that physical objects can be broken down into a collection of 3D shapes • To design a digital model by combining 3D objects • To develop and improve a digital 3D model	To create 3D graphical objects on a computer screen To alter the view of the 3D space To place a 3D object in a 3D space To select an object To delete an object To duplicate an object To reposition objects in three dimensions To rotate objects in three dimensions To resize an object in three dimensions To recolour an object To use an object as a placeholder To select multiple objects To group objects To modify multiple objects To recognise that blank objects must be used as placeholders to create holes To recognise the role of scale in design

| Programming B – Sensing | • 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 | • To create a program to run on a controllable device
• To explain that selection can control the flow of a program
• To update a variable with a user input
• To use an conditional statement to compare a variable to a value
• To design a project that uses inputs and outputs on a controllable device
• To develop a program to use inputs and outputs on a controllable device | To identify a variable in an existing program
To experiment with the value of an existing variable
To choose a name that identifies the role of a variable to make it more usable (to humans)
To decide where in a program to set a variable
To update a variable with a user input
To use an event in a program to update a variable
To use a variable in a conditional statement to control the flow of a program
To use the same variable in more than one location in a program |