COMPUTING

Subject Rationale - Computing
The intent of our Computing curriculum is to develop 'thinkers of the future' through a modern and relevant education in computing. We want to encourage our children to use computational thinking and creativity that enables them to become active participants in the digital world, and allow them to understand how to use ever-changing technology as tools for learning and a medium through which they can express themselves. Our Computing curriculum is designed to balance acquiring a broad and deep knowledge discretely, alongside opportunities to apply digital skills in various contexts within wider learning across our whole curriculum. Most significantly, we recognise our responsibility within our Computing curriculum to ensure our children understand the advantages and disadvantages associated with online experiences, so that they continue to be respectful, responsible and confident users of technology and aware of measures that can be taken to keep themselves, and others, safe online.

Computing						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Year 1	Technology Around Us	Creating Media - Digital Painting	Programming - Moving a Robot	Data & Information – Grouping	Creating Media - Digital Writing	Programming – Animations
Year 2	Information Technology Around Us	Creating Media - Digital Photography	Programming - Robot Algorithms	Data & Information – Pictograms	Creating Media - Digital Music	Programming - Quizzes
Year 3	Connecting Computers	Creating Media - Stop frame Animation	Programming - Sequencing Sounds	Data and Information - Branching Databases	Creating Media - Desktop Publishing	Programming – Events & Actions in Programs
Year 4	The Internet	Creating Media – Audio Production	Programming - Repetition in Shapes	Data & Information - Data Logging	Creating Media – Photo Editing	Programming - Repetition in Games
Year 5	Systems & Searching	Creating Media – Video Production	Programming - Selection in Physical Computing	Data & Information - Flat-file Databases	Creating Media - Introduction to Vector Graphics	Programming – Selection in Quizzes
Year 6	Communication & Collaboration	Creating Media - Webpage Creation	Programming - Variables in Games	Data & Information - Introduction to Spreadsheets	Creating Media 3D Modelling	Programming - Sensing Movement

Skills Progression Mapping – Computing						
	FS1			FS2		
Computing Systems & Networks	• Recognise and name some everyday objects such as a phone, computer, tv. • Use technology in their play.			• Talk about technology they use at home • Make suggestions about how something might work eg remote control car		
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Computing Systems & Networks	• To identify technology. • To identify a computer and its main parts. • To use a mouse in different ways. • To use a keyboard to type on a computer. • To use the keyboard to edit text.	• To identify uses and features of information technology. • 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 explain how digital devices function. • To identify input and output devices. • To recognise how digital devices can change the way we work. • To explore how digital devices can be connected. • To recognise the physical components of a network.	• 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). • 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 explain that computers can be connected together to form systems. • To recognise the role of computer systems in our lives. • 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 explain the importance of internet addresses. • To recognise how data is transferred across the internet. • To explain how sharing information online can help people to work together. • To recognise how we communicate using technology.

Skills Progression Mapping – Computing						
	FS1			**FS2**		
Data & Information	• Identify similarities and differences in pictures, patterns, shapes and common objects. • Recognise that some things work to achieve a goal and others don't. • Fix simple errors during play.			• Continue a repeating pattern • Describe a repeating pattern • Spot mistakes in a pattern • Fix errors in play and give simple explanations • Make simple predictions		
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Data & Information	• To label objects. • To identify that objects can be counted. • To describe objects in different ways. • To count objects with the same properties. • To compare groups of objects.	• To recognise that objects can be represented as pictures. • To create a pictogram. • To select objects by attribute and make comparisons. • To explain that we can present information using a computer.	• To create questions with yes/no answers. • To identify the attributes needed to collect data about an object. • To create a branching database. • To explain why it is helpful for a database to be well structured. • To independently create an identification tool.	• To explain that data can be used to answer questions. • To use a digital device to collect data. • To create a digital device to collect data. • To explore using data as a condition. • To write a program including conditions and selection.	• To use a form to record information. • To outline how you can answer questions by grouping and then sorting data. • To explain that tools can be used to select specific data. • To explain that computer programs can be used to compare data visually. • To use a real-world database to answer questions.	• To create a data set in a spreadsheet. • To build a data set in a spreadsheet. • To explain that formulas can be used to produce calculated data. • To apply formulas to data. • To create a spreadsheet to plan an event. • To choose suitable ways to present data.

Skills Progression Mapping – Computing						
	FS1			FS2		
Creating Media	• Use words to communicate. • Know that print has meaning. • Know that communication happens when using some technology.			• Match letters to sounds. • Segment CVC words • Show purpose in technology through role-play.		
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Creating Media	• To use the shape tool and the line tools. • To use a computer on my own to paint a picture • 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 use a digital device to take a photo • To take photos in both landscape and portrait format. • To identify what makes a good photo • To recognise the effect of light on an image. • To use tools to change the colour effect • To use a computer to create a musical pattern.	• To explain that animation is a sequence of drawings or photographs. • To plan an animation. • To review and improve an animation. • To recognise how text and images convey information. • To recognise that text and layout can be edited. • To choose appropriate page settings. • To add content to a desktop publishing publication. • To consider how different layouts can suit different purposes.	• To identify that sound can be recorded. • To explain that audio recordings can be edited. • To recognise the different parts of creating a podcast project. • To apply audio editing skills independently. • To combine audio to enhance my podcast project. • To explain that the composition of digital images can be changed. • To explain that colours can be changed in digital images. • To explain how cloning can be used in photo editing. • To explain that images can be combined. • To combine images for a purpose.	• To identify digital devices that can record video. • To capture video using a range of techniques. • To identify that video can be improved through reshooting and editing. • To identify that drawing tools can be used to produce different outcomes. • To create a vector drawing by combining shapes. • To use vector 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 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 recognise that you can work in three dimensions on a computer. • To identify that digital 3D objects can be modified. • To recognise that objects can be combined in a 3D model. • To create a 3D model for a given purpose.

Skills Progression Mapping – Computing

	FS1	FS2
Programming	• Use a visual timetable to know what is happening next. • Follow simple directions. • Understand simple routines.	• Use visual timetable to plan and process the daily routines. • Follow directions involving multiple steps. • Understand the steps needed to achieve an end goal.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Programming	• To combine forwards and backwards commands to make a sequence. • To combine four direction commands to make sequences. • To plan a simple program. • To choose a command for a given purpose. • 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 use my algorithm to create a program.	• To describe a series of instructions as a sequence. • To use logical reasoning to predict the outcome of a program. • To explain that programming projects can have code and artwork. • To design an algorithm. • To create and debug a program that I have written. • To explain that a sequence of commands has a start. • To explain that a sequence of commands has an outcome. • To create a program using a given design. • To change a given design.	• 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 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 use decomposition to create a dance sequence. • To create a simple flowchart algorithm using repetition. • To present an animation. • To develop the use of count-controlled loops in a different programming environment. • 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 create a project that includes repetition.	• To read, evaluate and write algorithms • To follow and modify algorithms • To write programs that use inputs and outputs • 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 create a program which uses selection.	• 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 use my design to create a project. • 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 a conditional statement to compare a variable to a value. • To develop a program to use inputs and outputs on a controllable device.

Vocabulary Progression Mapping – Computing					
Computing - Foundation					
computer, keyboard, mouse, screen, press, button, touch, on, off, light, switch, turn, website, internet, Google, You tube, video, camera, picture, save, IPad, phone, print, laptop,					
Computing - Year 1 – Unit 1 – Theme(s) Computing Systems and Networks – Technology Around Us					
technology online	computer mouse	icon click and drag	keyboard typing	cursor file	online safety
Computing - Year 1 – Unit 2 – Theme(s) Creating Media – Digital Painting					
fill tool undo tool	shape tool line tool	digital painting save	brush tool erase tool	spray can tool	digitally media
Computing - Year 1 – Unit 3 – Theme(s) Programming – Moving a Robot					
command outcome	instruction direction	sequence run		algorithm program	debug route
Computing - Year 1 – Unit 4 – Theme(s) Data and Information – Grouping Data					
search image	data information	properties	values	drag and drop	record
Computing - Year 1 – Unit 5 – Theme(s) Creating Media – Digital Writing					
word processor keyboard keys	text cursor backspace	toolbar caps lock italic	text font select	undo redo	type
Computing - Year 1 – Unit 6 – Theme(s) Programming - Programming Animations					
command programming block programming area	start block end block algorithm	value animation	sprite	design code	program
Computing - Year 2 – Unit 1 – Theme(s) Computing Systems and Networks – IT Around Us					
information technology device	cursor resizing handle	chip and pin contactless	barcode scanner/scan	password secure	connect Information Technology (IT)
Computing - Year 2 – Unit 2 – Theme(s) Creating Media – digital photography					
lens image	digital device digital camera	viewing window capture button	portrait landscape	editing filter	framing focus

Vocabulary Progression Mapping – Computing
Computing - Year 2 – Unit 3 – Theme(s) Programming – Robot Algorithms

sequence clear algorithm	outcome	command prediction	route mat code	debugging program	decomposition
Computing - Year 2 – Unit 4 – Theme(s) Data and Information – Pictograms					
tally pictogram	data format	popular diagram	attribute		block diagram presenting
Computing - Year 2 - Unit 5 – Theme(s) Creating Media - Digital Music					
emotions	pulse rhythm	pitch tempo notes	musical pattern sequence	digital music	edit
Computing - Year 2 – Unit 6 – Theme(s) Programming - Programming Quizzes					
sequence command run	predict outcome	design block	actions code snippet	algorithm	debug code
Computing - Year 3 – Unit 1 - Theme(s) Computing Systems and Networks – Connecting Computers					
digital device process	input output	digital/ non-digital program	connection network switch	Wireless Access Point (WAP) server	network cables network sockets
Computing - Year 3 – Unit 2 – Theme(s) Creating Media - Stop-Frame Animation					
animation flip book	frame per second pause	stop-frame animation sequence	consistency image onion skinning	delete	media import transition
Computing - Year 3 – Unit 3 – Theme(s) Programming - Sequencing Sounds					
programming blocks programming stage Sprite	motion block	event block sequence	algorithm code	animate stage backdrop	debug
Computing - Year 3 – Unit 4 – Theme(s) Data and Information – Branching Databases					
data database attribute	branching database value		structure order	selecting	decision tree identification
Computing - Year 3 – Unit 5 – Theme(s) Creating Media – Desktop Publishing					
text image emoji	desktop publishing font style	template page orientation (landscape/portrait) place holder		layout	benefit appearance

Vocabulary Progression Mapping – Computing
Computing - Year 3 – Unit 6 – Theme(s) Programming - Events and Actions in Programs

event action	resize	extension block set up	feature program algorithm	debugging error	event block motion block pen block
Computing - Year 4 – Unit 1 – Theme(s) Computing Systems and Networks – The Internet					
internet router	routing website	web address web page	domain web browser	ownership download	legal content
Computing - Year 4 – Unit 2 – Theme(s) Creating Media - Audio Production Audiomass					
audio production waveform	trimming audio alignment	layer podcast	voice track mute	export mp3 file	track playback
Computing - Year 4 – Unit 3 – Theme(s) Programming – Repetition in Shapes (microbit unit)					
decomposition algorithm sequence	repeat block repetition flowchart animation		debug	loop decompose	run program
Computing - Year 4 – Unit 4 – Theme(s) Data and Information – Data Logging (microbit unit)					
data layout value	sensor	if then else forever		condition selection	digital assistant
Computing - Year 4 – Unit 5 – Theme(s) Creating Media – Photo Editing (Use Photopea)					
crop rotate composition	hue recolour sepia vignette	clone retouch	copy paste adjust	composite foreground background	overlap blur zoom
Computing - Year 4 – Unit 6 – Theme(s) Programming – Repetition in Games					
snippet code loop (repeating command) outcome	count-controlled loop infinite loop	infinite loop forever loop modify repetition		rotate algorithm	refine debug evaluate

Vocabulary Progression Mapping – Computing					
Computing - Year 5 – Unit 1 – Theme(s) Computing Systems and Networks – Systems & Searching					
system/digital system connection	digital input digital output	search engine process	index crawler	search engine optimisation (SEO)	web crawler ranking

				algorithm	
Computing - Year 5 – Unit 2 – Theme(s) Creating Media - Video Production					
talking head section panning section	close-up mid-range long shot	static camera pan and tilt zoom	scene script	split trim	reorder export
Computing - Year 5 – Unit 3 – Theme(s) Programming – Selection in Physical Computing (replaced with a Microbit unit)					
repetition selection forever	input phrase[musical]	modify	input/output selection		
Computing - Year 5 – Unit 4 – Theme(s) Data and Information – Flat-File Databases					
database data card record field		criteria value	data type refine	chart filter	shortlist
Computing - Year 5 – Unit 5 – Theme(s) Creating Media – Introduction to Vector Graphics					
vector vector drawing	duplicate rotate	alignment resize handle	layer layering	manipulate grouping/ungroup	freehand
Computing - Year 5 – Unit 6 – Theme(s) Programming – Selection in Quizzes					
condition conditional selection	infinite loop forever loop outcome	program flow branch	selection command algorithm	implement design debug	setup code operator

Vocabulary Progression Mapping – Computing

Computing - Year 6 – Unit 1 – Theme(s) Computing Systems and Networks – Communication & Collaboration					
Internet Protocol (IP) Domain Name Server (DNS)	packet header data payload	media	remix public/private	protocol	Short Messaging Service (SMS) electronic communication
Computing - Year 6 – Unit 2 – Theme(s) Creating Media – Web Page Creation					
browser hypertext markup language (html)	header format logo	copyright fair use	preview homepage	breadcrumb trail hyperlink navigate	linking embedding
Computing - Year 6 – Unit 3 – Theme(s) Programming – Variables in Games					
variable value	placeholder name	event operator block paddle	algorithm	error debug	URL
Computing - Year 6 – Unit 4 – Theme(s) Data and Information – Spreadsheets					
spreadsheet column	cell cell reference data item format	formula data type	function sigma duplicate	data set subtotal	software chart
Computing - Year 6 – Unit 5 – Theme(s) Creating Media – 3D Modelling					
dimension 3D modelling workplane	lift modify	grouping	placeholder hollow	architecture	proportion modify
Computing - Year 6 – Unit 6 – Theme(s) Programming - Sensing Movement					
Microbit emulator USB	variable flow	accelerometer	comparison operators compass	program flow isolate code substitute code	simulate download

Learning Overview - COMPUTING YEAR 1
Unit 1 – Theme(s) Computing Systems and Networks – Technology Around Us **Software – paintz.app**

Safety Starter: Recognise that there may be people online who could make someone feel sad, embarrassed or upset.	**Safety Starter:** Give examples of when and how to speak to an adult if something happens that makes me feel sad, worried, uncomfortable or frightened.	**Safety Starter:** Give examples of when I should ask permission to do something online and explain why this is important.	**Safety Starter:** Use the internet with adult support to communicate with people I know (e.g. video call apps or services).	**Safety Starter:** Explain why it is important to be considerate and kind to people online and to respect their choices.	**Safety Starter:** Explain why things one person finds funny or sad online may not always be seen in the same way by others.
LO: To identify technology.	LO: To identify a computer and its main parts.	LO: To use a mouse in different ways.	LO: To use a keyboard to type on a computer.	LO: To use the keyboard to edit text.	LO: To create rules for using technology responsibly.
Locate examples of technology in the classroom. Explain technology as something that helps us. Explain how these technology examples help us. Recognise that some technology can be used in different ways.	Use a mouse to click and drag. Switch on and log into a computer. Name the main parts of a computer. Explain the purpose of the main parts of a computer.	Use a mouse to open a program. Click and drag to make objects on a screen Use a mouse to create a picture. Use a mouse for other functions e.g. changing the background colour using the “fill” tool.	Say what a keyboard is for. Type name on a computer. Save work to a file. Alter the size, colour and/or font of text in a text box.	Use the arrow keys to move the cursor. Delete letters. Open work from a file. Use the keyboard to write and edit own sentences.	Know rules keep us safe and healthy when we are using technology in and beyond the home. Give examples of some of these rules. Discuss how we benefit from these rules. Suggest additional, appropriate rules.
technology online	computer mouse	icon click and drag	keyboard typing	cursor file	online safety

Learning Overview - COMPUTING YEAR 1
Unit 2 – Theme(s) Creating Media – Digital Painting software – paintz.app

Safety Starter: Recognise that information can stay online and could be copied.	**Safety Starter:** Describe what information I should not put online without asking a trusted adult first.	**Safety Starter:** Describe how to behave online in ways that do not upset others and can give examples.	**Safety Starter:** Give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching).	**Safety Starter:** Understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke.	**Safety Starter:** Know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.
LO: To describe what different freehand tools do	LO: To use the shape tool and the line tools	LO: To make careful choices when painting a digital picture	LO: To explain why I chose the tools I used	LO: To use a computer on my own to paint a picture	LO: To compare painting a picture on a computer and on paper
Make marks on a screen and explain which tools used. Draw lines on a screen and explain which tools used. Use the paint tools to draw a picture. Verbalise which tools to use for which purpose.	Make marks with the square and line tools. Use the shape and line tools effectively. Use the shape and line tools to recreate the work of an artist. Apply knowledge to create own work using a different shape.	Make appropriate colour choices. Choose appropriate shapes. Create a picture in the style of an artist. Combine and use tools to create own shapes.	Choose appropriate paint tools and colours to recreate the work of an artist. Know that different paint tools do different jobs. Say which tools were helpful and why. To use a range of tools and explain their choices	Make dots of colour on the page. Change the colour and brush sizes. Use dots of colour to create a picture in the style of an artist. Base own work around a given stimulus.	Explain that pictures can be made in lots of different ways. Say whether prefer painting using a computer or using paper. Spot the differences between painting on a computer and on paper. Give reasons when painting on a computer /paper would be appropriate.
fill tool undo tool	shape tool line tool	digital painting save	brush tool erase tool	spray can tool	digitally media

Learning Overview - COMPUTING YEAR 1
Unit 3 – Theme(s) Programming – Moving a Robot **Hardware - Beebots**

Safety Starter: Explain rules to keep myself safe when using technology both in and beyond the home.	**Safety Starter:** Explain that passwords are used to protect information, accounts and devices.	**Safety Starter:** Recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names).	**Safety Starter:** Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	**Safety Starter:** Explain why work I create using technology belongs to me.	**Safety Starter:** Say why it belongs to me (e.g. 'I designed it' or 'I filmed it'').
LO: To explain what a given command will do.	LO: To act out a given word.	LO: To combine forwards and backwards commands to make a sequence.	LO: To combine four direction commands to make sequences.	LO: To plan a simple program.	LO: To find more than one solution to a problem.
Match a command to an outcome. Run a command on a device. Predict the outcome of a command on a device. Explain the function of the GO/CLEAR buttons.	Follow an instruction. Recall words that can be acted out. Give directions. Create a sequence of directions.	Compare forwards and backwards movements. Start a sequence from the same place. Predict the outcome of a sequence involving forwards and backwards commands. Select from a selection of commands to fulfil a prediction.	Compare left and right turns. Experiment with turn and move commands to move a robot. Predict the outcome of a sequence involving up to four commands. Implement a sequence to check their predictions and be able to explain any adjustments.	Choose the order of commands in a sequence. Explain what own program should do. Debug a program. Implement their algorithm and evaluate its effectiveness.	Use two different programs to get to the same place. Plan two programs to get to the same place. Identify several possible solutions. Complete more complicated sequences independently.
command outcome	instruction direction	sequence run		algorithm program	debug route

Learning Overview - COMPUTING YEAR 1
Unit 4 – Theme(s) Data and Information – Grouping Data

Safety Starter: Save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content).	**Safety Starter:** Understand that work created by others does not belong to me even if I save a copy.	**Safety Starter:** Recognise that there may be people online who could make someone feel sad, embarrassed or upset.	**Safety Starter:** Give examples of when and how to speak to an adult if something happens that makes me feel sad, worried, uncomfortable or frightened.	**Safety Starter:** Give examples of when I should ask permission to do something online and explain why this is important.	**Safety Starter:** Use the internet with adult support to communicate with people I know (e.g. video call apps or services).
LO: To label objects.	LO: To identify that objects can be counted.	LO: To describe objects in different ways	LO: To count objects with the same properties.	LO: To compare groups of objects.	LO: To answer questions about groups of objects.
Match objects to groups. Identify the label for a group of objects. Describe objects using labels. Show understanding that objects can belong to more than one group.	Count objects. Count a group of objects. Group objects. Show understanding that objects that are the same but look different can still be grouped together.	Find objects with similar properties. Describe an object. Describe a property of an object. Show understanding that labels are given to objects so that computers are able to find what humans are looking for.	Group similar objects. Count how many objects share a property. Group objects in more than one way. Suggest the property/properties that a set of objects have been grouped by.	Choose how to group objects. Describe groups of objects. Record how many objects are in a group. Suggest further descriptions of groups using “vocabulary for describing”.	Compare groups of objects. Decide how to group objects to answer a question. Record and share findings. Create own questions to answer a question.
search image	data information	properties	values	drag and drop	record

Learning Overview - COMPUTING YEAR 1
Unit 5 – Theme(s) Creating Media – Digital Writing

Safety Starter: Explain why it is important to be considerate and kind to people online and to respect their choices.	**Safety Starter:** Explain why things one person finds funny or sad online may not always be seen in the same way by others.	**Safety Starter:** Recognise that information can stay online and could be copied.	**Safety Starter:** Describe what information I should not put online without asking a trusted adult first.	**Safety Starter:** Describe how to behave online in ways that do not upset others and can give examples.	**Safety Starter:** Give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching).
LO: To use a computer to write.	LO: To add and remove text on a computer.	LO: To identify that the look of text can be changed on a computer.	LO: To make careful choices when changing text.	LO: To explain why I used the tools that I chose.	LO: To compare typing on a computer to writing on paper.
Open a word processor. Recognise keys on a keyboard. Identify and find keys on a keyboard. Use the **space, enter** and **backspace** keys.	Use letter, number, and space keys. Enter text into a computer. Use backspace to remove text. Able to use the mouse to move the text cursor accurately.	Type capital letters. Identify the toolbar and use bold, italic, and underline. Explain what the different keys functions do. Show understanding of a wider range of keys/functions.	Select a word by double-clicking. Select all of the text by clicking and dragging. Change the font. Show other ways to change text to grab attention.	Say what tools have been used to change the text. Use 'undo' to remove changes. Decide if changes have improved writing. Show understanding of an alternative way to make changes without using "undo."	Make changes to text on a computer. Say why I prefer typing or writing. Explain the differences between typing and writing. Give examples of when to use one method over another.
word processor keyboard keys	text cursor backspace	toolbar caps lock italic	text font select	undo redo	type

Unit 6 – Theme(s) Programming - Programming Animations					
Safety Starter: Understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke.	**Safety Starter:** Know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.	**Safety Starter:** Explain rules to keep myself safe when using technology both in and beyond the home.	**Safety Starter:** Explain that passwords are used to protect information, accounts and devices.	**Safety Starter:** Recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names).	**Safety Starter:** Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.
LO: To choose a command for a given purpose.	LO: To show that a series of commands can be joined together.	LO: To identify the effect of changing a value.	LO: To explain that each sprite has its own instructions.	LO: To design the parts of a project.	LO: To use my algorithm to create a program.
Find which commands to move a sprite. Use commands to move a sprite. Compare different programming tools. Can give examples of differences between programs.	Use more than one block by joining them together Use a Start block in a program. Run own program Compare and join different programming blocks and suggest how they might be used .	Find blocks that have numbers. Change the value. Know what happens when a value is changed. Experiment with blocks containing numbers to look at the impact on the program	Show that a project can include more than one sprite. Delete a sprite. Add blocks to each of own sprites. Confidently develop programs for multiple sprites explain how they will behave	Choose appropriate artwork for own project Decide how each sprite will move. Create an algorithm for each sprite. Explain which command they have used and how it will move a sprite	Use sprites that match own design. Add programming blocks based on own algorithm. Test the programs that have been created. Test a program created and evaluate how successful it has been, suggesting any changes needed
command programming block programming area	start block end block algorithm	value animation	sprite	design code	program

Unit 1 – Theme(s) Computing Systems and Networks – IT Around Us					
Safety Starter: Explain how other people may look and act differently online and offline.	**Safety Starter:** Give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; give examples of how they might get help.	**Safety Starter:** Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country).	**Safety Starter:** Explain why I have a right to say 'no' or 'I will have to ask someone' and who can help me if I feel under pressure to agree to something I am unsure about or don't want to do.	**Safety Starter:** Explain who I should ask before sharing things about myself or others online.	**Safety Starter:** Describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure.
LO: To recognise the uses and features of information technology.	LO: To identify the uses of information technology in the school.	LO: To identify information technology beyond school.	LO: To explain how information technology helps us.	LO: To explain how to use information technology safely.	LO: To recognise that choices are made when using information technology.
Identify that a computer is a part of IT. Identify examples of computers. Describe some uses of computers. Suggest examples of things that work *with* computers.	Sort school IT by what it's used for. Identify examples of IT. Identify that some IT can be used in more than one way. Suggest ways in which school IT can be used in other ways.	Find examples of information technology. Talk about uses of information technology. Sort IT by where it is found. Explain how some devices work together e,g traffic light, crossing button, crossing signal.	Recognise common types of technology. Say why we use IT. Demonstrate how IT devices work together. Give other examples of IT devices working together.	List different uses of information technology. Talk about different rules for using IT. Say how rules can help keep people safe. Explain why rules are important and how they keep them safe.	Use IT for different types of activities. Explain the need to use IT in different ways. Identify choices made when using IT. Suggest own examples of digital 5-a-day activities.
information technology device	cursor resizing handle	chip and pin contactless	barcode scanner/scan	password secure	connect Information Technology (IT)

Learning Overview - COMPUTING YEAR 2
Unit 2 – Theme(s) Creating Media – digital photography - ipads

Safety Starter: Identify who can help me if something happens online without my consent.	**Safety Starter:** Explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.	**Safety Starter:** Explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	**Safety Starter:** Explain how information put online about someone can last for a long time.	**Safety Starter:** Describe how anyone's online information could be seen by others.	**Safety Starter:** Know who to talk to if something has been put online without consent or if it is incorrect.
LO: To use a digital device to take a photograph.	LO: To make choices when taking a photograph.	LO: To describe what makes a good photograph.	LO: To decide how photographs can be improved.	LO: To use tools to change an image.	LO: To recognise that photos can be changed.
Recognise what devices can be used to take photographs. Talk about how to take a photograph. Explain how digital photo was captured. Explain why they took a particular photo – beginning to think about composition	Explain the process of taking a good photograph Take photos in both landscape and portrait format. Explain why a photo looks better in portrait or landscape format. Select examples of photos to show the difference between landscape and portrait.	Identify what is wrong with a photograph. Discuss how to take a good photograph. Improve a photograph by retaking it. Explain several reasons why a photograph may be good or bad and suggest ways of improving it	Experiment with different light sources. Explain why a picture may be unclear. Explore the effect that light has on a photo. Take photos with awareness of light sources and retake and explain why a phot is clear or unclear	Recognise that images can be changed. Use a tool to achieve a desired effect on an image. Explain choices when changing an image. use different tools to enhance a photograph to achieve a specific outcome on the photo, considering the impact of choices made	Identify which photos are real and which have been changed. Explain when a photo may need to be changed. Apply a range of photography skills to capture a photo. Identify how and why their project could be improved
lens image	digital device digital camera	viewing window capture button	portrait landscape	editing filter	framing focus

Learning Overview - COMPUTING YEAR 2
Unit 3 – Theme(s) Programming – Robot Algorithms - Beebots

Safety Starter: Explain what bullying is, how people may bully others and how bullying can make someone feel.	**Safety Starter:** Explain why anyone who experiences bullying is not to blame.	**Safety Starter:** Talk about how anyone experiencing bullying can get help.	**Safety Starter:** Use simple keywords in search engines.	**Safety Starter:** Demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).	**Safety Starter:** Explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri).
LO: To describe a series of instructions as a sequence.	LO: -To explain what happens when we change the order of instructions.	LO: To use logical reasoning to predict the outcome of a program.	LO: To explain that programming projects can have code and artwork.	LO: To design an algorithm.	LO: To create and debug a program that I have written.
Follow instructions given by someone else. Give clear instructions. Choose a series of words that can be enacted as a sequence. Describe the difference between giving a set of instructions to a person and programming a robot	Use an algorithm to program a sequence on a floor robot. Use the same instructions to create different algorithms. Show the difference in outcomes between two sequences that consist of the same commands. Can explain how the order of instructions can change the outcome.	Follow a sequence. Predict the outcome of a sequence. Compare prediction to the program outcome. Explain why a prediction may vary from the outcome.	Test mat to make sure that it is usable. Identify different routes around own mat. Explain the choices made for mat design. Suggest ways to improve their design and explain why.	Explain what algorithm should achieve. Create an algorithm to meet goal. Use algorithm to create a program. Show how to use debugging to improve their algorithm.	Plan algorithms for different parts of a task. Put together the different parts of program. Test and debug each part of the program. Explain how breaking down the parts of a program helps a program to be effective.
sequence clear algorithm	outcome	command prediction	route mat code	debugging program	decomposition

Learning Overview - COMPUTING YEAR 2
Unit 4 – Theme(s) Data and Information – Pictograms

Safety Starter: Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'.	**Safety Starter:** Explain why some information I find online may not be real or true.	**Safety Starter:** Explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment.	**Safety Starter:** Say how those rules / guides can help anyone accessing online technologies.	**Safety Starter:** Explain how passwords can be used to protect information, accounts and devices.	**Safety Starter:** Explain and give examples of what is meant by 'private' and 'keeping things private'.
LO: To recognise that we can count and compare objects using tally charts.	LO: To recognise that objects can be represented as pictures.	LO: To create a pictogram.	LO: To select objects by attribute and make comparisons.	LO: To recognise that people can be described by attributes.	LO: To explain that we can present information using a computer.
Record data in a tally chart. Represent a tally count as a total. Compare totals in a tally chart. Can match tally charts to a corresponding data set.	Enter data onto a computer. Use computer to view data in a different format. Use pictograms to answer simple questions about objects. Use pictograms to create own questions.	Organise data in a tally chart. Use a tally chart to create a pictogram. Explain what the pictogram shows. Can answer a range of questions using pictograms.	Tally objects using a common attribute. Create a pictogram to arrange objects by an attribute. Answer 'more than'/'less than' and 'most/least' questions about an attribute. Identify attributes used to group objects.	Choose suitable attribute to compare people. Collect the data needed. Create a pictogram and draw conclusions from it. Can draw conclusions from a range of pictograms.	Share what was found out using a computer. Use a computer program to present information in different ways. Give simple examples of why information should not be shared. Explain own preferences for presenting/analysing data.
tally pictogram	data format	popular diagram	attribute		block diagram presenting

Learning Overview - COMPUTING YEAR 2
Unit 5 – Theme(s) Creating Media - Digital Music

Safety Starter: Describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).	**Safety Starter:** Explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).	**Safety Starter:** Recognise that content on the internet may belong to other people.	**Safety Starter:** Describe why other people's work belongs to them.	**Safety Starter:** Identify who can help me if something happens online without my consent.	**Safety Starter:** Explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online.
LO: To say how music can make us feel.	LO: To identify that there are patterns in music.	LO: To experiment with sound using a computer.	LO: To use a computer to create a musical pattern.	LO: To create music for a purpose.	LO: To review and refine our computer work.
Give likes and dislikes about a piece of music. Describe music using a choice of adjectives. Identify simple differences in pieces of music. Use own words to describe how the music makes them feel.	Explain that music is created and played by humans. Play an instrument following a rhythm pattern. Create a rhythm pattern. Select their favourite rhythm pattern and describe this.	Relate an idea to a piece of music. Connect images with sounds. Use a computer to experiment with pitch. Demonstrate they can apply skills to create a piece of music to a theme.	Identify that music is a sequence of notes. Explain how own music can be played in different ways. Refine own musical pattern on a computer. Create multiple sequences of notes and refine them.	Create a rhythm to represents a chosen animal. Add a sequence of notes to animal rhythm. Create animal rhythm on a computer. Create a sequence of notes for two animals and link these.	Listen to music and describe feelings. Review own work. Explain changes made to work. Identify how and why they could improve their project.
emotions	pulse rhythm	pitch tempo notes	musical pattern sequence	digital music	edit

Learning Overview - COMPUTING YEAR 2
Unit 6 – Theme(s) Programming - Programming Quizzes

Safety Starter: Explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	**Safety Starter:** Explain how information put online about someone can last for a long time.	**Safety Starter:** Describe how anyone's online information could be seen by others.	**Safety Starter:** Know who to talk to if something has been put online without consent or if it is incorrect.	**Safety Starter:** Explain why anyone who experiences bullying is not to blame.	**Safety Starter:** Talk about how anyone experiencing bullying can get help.
LO: To explain that a sequence of commands has a start.	LO: To explain that a sequence of commands has an outcome.	LO: To create a program using a given design.	LO: To change a given design.	LO: To create a program using my own design.	LO: To decide how my project can be improved.
Identify that a program needs to be started. Identify the start of a sequence. Show how a program is run.	Match two sequences with the same outcome. Change the outcome of a sequence of commands. Predict the outcome of a sequence of commands.	Work out the actions of a sprite in an algorithm. Decide which blocks to use to meet a design. Build sequence of blocks needed.	Choose characters for the design. Choose backgrounds for the design. Create a program based on the new design.	Choose the images for own own design. Create an algorithm. Build sequences of blocks to match own design.	Compare own project to design. Debug own program. Improve project by adding features.
sequence command run	predict outcome	design block	actions code snippet	algorithm	debug code

Learning Overview - COMPUTING YEAR 3
Unit 1 – Theme(s) Computing Systems and Networks – Connecting Computers

Safety Starter: Explain what is meant by the term 'identity'.	**Safety Starter:** Explain how people can represent themselves in different ways online.	**Safety Starter:** Explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming; using an avatar; social media) and why.	**Safety Starter:** Describe ways people who have similar likes and interests can get together online.	**Safety Starter:** Explain what it means to 'know someone' online and why this might be different from knowing someone offline.	**Safety Starter:** Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online including what information and content they are trusted with.
LO: To explain how digital devices function.	LO: To identify input and output devices.	LO: To recognise how digital devices can change the way we work.	LO: To explain how a computer network can be used to share information.	LO: To explore how digital devices can be connected.	LO: To recognise the physical components of a network.
Follow a process. Explain that digital devices accept inputs. Explain that digital devices produce outputs. Explain the function of digital devices, identifying their inputs, processes, and outputs, and describing how secure passwords protect these devices from cyber-attacks.	Classify input and output devices. Describe a simple process. Design a digital device. Include multiple inputs/and or outputs in their device and describe how these work together.	Explain how digital devices are used for different activities. Recognise similarities between using digital devices and non-digital tools. Suggest differences between using digital devices and non-digital tools. Give examples of situations where a non-digital tool is more suitable than a device and explain why.	Recognise different connections. Explain how messages are passed through multiple connections. Discuss why we need a network switch. Explain the function of different connections and how messages are passed through multiple connection and show a network switch works.	Recognise a computer network is made up of a number of devices. Explain role of a switch, server, and wireless access point in a network. Demonstrate how information can be passed between devices. Explain the function of a computer network, it`s devices, identify the switch, server and wireless access point, describing how information can be passed between devices.	Identify networked devices around them. Identify how devices in a network are connected together. Identify the benefits of computer networks. Explain the purpose of devices found in the network.
digital device process	input output	digital/ non-digital program	connection network switch	Wireless Access Point (WAP) server	network cables network sockets

Unit 2 – Theme(s) Creating Media - Stop-Frame Animation					
Safety Starter: Explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried.	**Safety Starter:** Explain how someone's feelings can be hurt by what is said or written online.	**Safety Starter:** Explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	**Safety Starter:** Explain how to search for information about others online.	**Safety Starter:** Give examples of what anyone may or may not be willing to share about themselves online. explain the need to be careful before sharing anything personal.	**Safety Starter:** Explain who someone can ask if they are unsure about putting something online.
LO: To explain that animation is a sequence of drawings or photographs.	LO: To relate animated movement with a sequence of images.	LO: To plan an animation.	LO: To identify the need to work consistently and carefully.	LO: To review and improve an animation.	LO: To evaluate the impact of adding other media to an animation.
Draw a sequence of pictures. Explain how an animation/flip book works. Create an effective flip book—style animation. Explain the benefits of using software to create animations	Predict what an animation will look like. Create an effective animation. Explain why little changes are needed for each frame. Create a pause in an animation	Break down a story into settings, characters and events. Create a storyboard. Describe an animation that is achievable on screen. Storyboard indicates what is needed to create the animation.	Use onion skinning to make small changes between frames. Review sequence of frames to check work. Evaluate the quality of animation. Movement is consistent throughout.	Evaluate another learner's animation. Improve own animation based on feedback. Explain ways to make own animation better. identify improvements and make those changes.	Add other media to animation. Explain why other media has been added to animation. Evaluate final film. Evaluate how successful they were in meeting the task requirements.
animation flip book	frame frame per second pause	stop-frame animation sequence	consistency image onion skinning	delete	media import transition

Unit 3 – Theme(s) Programming - Sequencing Sounds – Scratch.mit.edu					
Safety Starter: Describe appropriate ways to behave towards other people online and why this is important.	**Safety Starter:** Give examples of how bullying behaviour could appear online and how someone can get support.	**Safety Starter:** Demonstrate how to use key phrases in search engines to gather accurate information online.	**Safety Starter:** Explain what autocomplete is and how to choose the best suggestion.	**Safety Starter:** Explain how the internet can be used to sell and buy things.	**Safety Starter:** Explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.
LO: To explore a new programming environment.	LO: To identify that commands have an outcome.	LO: To explain that a program has a start.	LO: To recognise that a sequence of commands can have an order.	LO: To change the appearance of my project.	LO: To create a project from a task description.
Identify the objects in a Scratch project (sprites, backdrops). Recognise that commands in Scratch are represented as blocks. Explain that objects in Scratch have attributes. Create a project with multiple sprites and backdrops.	Create a program following a design. Choose a word which describes an on-screen action for the plan. Identify that each sprite is controlled by chosen commands. Predict and explain the order of blocks in a sequence.	Start a program in different ways. Create a sequence of connected commands. Explain how objects in a project will respond exactly to the code. Describe a sequence, articulating the actions to recognise the relationship between code and what the project does.	Explain what a sequence is. Order notes into a sequence. Combine sound commands. Give examples of real-world sequences where order is important.	Make design choices for artwork. Decide the actions for each sprite in a program. Build a sequence of commands. Explain and describe their program in detail	Relate a task description to a design. Identify and name the objects needed for a project. Implement algorithm as code. Run their code and explain how it meets the requirement of the task.
programming blocks programming stage Sprite	motion block	event block sequence	algorithm code	animate stage backdrop	debug

Learning Overview - COMPUTING YEAR 3					
Unit 4 – Theme(s) Data and Information – Branching Databases					
Safety Starter: Explain that not all opinions shared may be accepted as true or	**Safety Starter:** Describe and demonstrate how we can get help from a trusted	**Safety Starter:** Explain why spending too much time using technology can	**Safety Starter:** Explain why some online activities have age restrictions, why it is	**Safety Starter:** Describe simple strategies for	**Safety Starter:** Give reasons why someone should only share information with

fair by others (e.g. monsters under the bed).	adult if we see content that makes us feel sad, uncomfortable worried or frightened.	sometimes have a negative impact on anyone, e.g. mood, sleep, body, relationships; give some examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos).	important to follow them and know who talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).	creating and keeping passwords private.	people they choose to and can trust. explain that if they are not sure or feel pressured then they should tell a trusted adult.
LO: To create questions with yes/no answers.	LO: To identify the attributes needed to collect data about an object.	LO: To create a branching database.	LO: To explain why it is helpful for a database to be well structured.	LO: To plan the structure of a branching database.	LO: To independently create an identification tool.
Investigate questions with yes/no answers. Create two groups of objects separated by one attribute. Make up a yes/no question about a collection of objects. Create yes/no questions related to an attribute.	Select an attribute to separate objects into groups. Create a group of objects within an existing group. Arrange objects into a tree structure. Suggest attributes that objects have been sorted by.	Select objects to arrange in a branching database. Group objects using own yes/no questions. Test branching database to see if it works. Can explain how/why a branching database works/doesn`t work.	Compare two branching database structures. Create yes/no questions using given attributes. Explain that questions need to be ordered carefully to split objects into similarly sized groups. Can give examples of how the order of questions is important for a branching database.	Create a physical version of a branching database. Create questions that will enable objects to be uniquely identified. Independently create questions to use in a branching database. Demonstrate whether an object has been placed correctly in a branching database by checking the questions.	Create a branching database that reflects plan. Work with a partner to test identification tool. Suggest real-world uses for branching databases. Provide examples where the use of a branching database would be appropriate.
data database attribute	branching database value		structure order	selecting	decision tree identification

Learning Overview - COMPUTING YEAR 3					
Unit 5 – Theme(s) Creating Media – Desktop Publishing - Use Adobe NOT Canva – see slides in Resources folder					
Safety Starter: Describe how connected devices can collect and share anyone's information with others.	**Safety Starter:** Explain why copying someone else's work from the internet without permission isn't	**Safety Starter:** Explain why someone may change their mind about trusting anyone with something if	**Safety Starter:** Explain how someone's feelings can be hurt by what is said or written online.	**Safety Starter:** Explain the importance of giving and gaining permission before sharing things online; how	**Safety Starter:** Explain what it means to 'know someone' online and why this might be different

	fair and can explain what problems this might cause.	they feel nervous, uncomfortable or worried.		the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	from knowing someone offline.
LO: To recognise how text and images convey information.	LO: To recognise that text and layout can be edited.	LO: To choose appropriate page settings.	LO: To add content to a desktop publishing publication.	LO: To consider how different layouts can suit different purposes.	LO: To consider the benefits of desktop publishing.
Recognise that text and images can communicate messages clearly. Explain the difference between text and images. Identify the advantages and disadvantages of using text and images. Understand how to use emojis respectfully.	Change font style, size, and colours for a given purpose. Edit text effectively. Explain how text can be changed to communicate more clearly. Model how to change text including resizing for a purpose.	Recognise placeholders and say why they are important. Define the term 'page orientation'. Create a template for a particular purpose. Explain the placement and purpose of the placeholders they have chosen.	Paste text and images to create a magazine cover. Choose the best locations for content. Make changes to content after adding it. Place images appropriately on a page.	Identify different layouts. Match a layout to a purpose. Choose a suitable layout for a given purpose. Explain why the layout they have chosen is most appropriate to the scenario.	Compare work made on desktop publishing to work created by hand. Identify the uses of desktop publishing in the real world. Say why desktop publishing might be helpful. Give examples of appropriate desk top publishing and layouts.
text image emoji	desktop publishing font style	template page orientation (landscape/portrait) place holder		layout	benefit appearance

Learning Overview - COMPUTING YEAR 3					
Unit 6 – Theme(s) Programming - Events and Actions in Programs					
Safety Starter: Explain what is meant by 'trusting someone online', why this is different from 'liking someone online', and why	**Safety Starter:** Describe appropriate ways to behave towards other people online and why this is important.	**Safety Starter:** Give examples of how bullying behaviour could appear online and how someone can get support.	**Safety Starter:** Explain why some online activities have age restrictions, why it is important to follow them and know who talk to if	**Safety Starter:** Describe simple strategies for creating and keeping passwords private.	**Safety Starter:** Give reasons why someone should only share information with people they choose to and can trust. explain that if

it is important to be careful about who to trust online including what information and content they are trusted with.			others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites).		they are not sure or feel pressured then they should tell a trusted adult.
LO: To explain how a sprite moves in an existing project.	LO: To create a program to move a sprite in four directions.	LO: To adapt a program to a new context.	LO: To develop my program by adding features.	LO: To identify and fix bugs in a program.	LO: To design and create a maze-based challenge.
Choose which keys to use for actions and explain choices. Explain the relationship between an event and an action. Identify a way to improve a program. Compare movements and implement changes.	Choose a character for project. Choose a suitable size for a character in a maze. Program movement. Demonstrate using **move** and **turn** blocks to move in different directions.	Consider the real world when making design choices. Choose blocks to set up a program. Use a programming extension. Purposefully add "set up" to their projects.	Identify additional features (from a given set of blocks). Choose suitable keys to turn on additional features. Build more sequences of commands to make a design work. Use pen tools to enhance their work further.	Match a piece of code to an outcome. Test a program against a given design. Modify a program using a design. Identify and explain the steps in order to effectively debug a program.	Make design choices and justify them. Implement own design. Evaluate own project. Systematically test a project as they create it, including effectively debugging.
event action	resize	extension block set up	feature program algorithm	debugging error	event block motion block pen block

Learning Overview - COMPUTING YEAR 4					
Unit 1 – Theme(s) Computing Systems and Networks – The Internet					
Safety Starter: Explain how my online identity can be different to my offline identity.	**Safety Starter:** Describe positive ways for someone to interact with others online and understand how this will positively impact	**Safety Starter:** Explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	**Safety Starter:** Describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms).	**Safety Starter:** Give examples of how to be respectful to others online and describe how to recognise healthy and	**Safety Starter:** Explain how content shared online may feel unimportant to one person but may be important to other people's

	on how others perceive them.			unhealthy online behaviours.	thoughts feelings and beliefs.
LO: To describe how networks physically connect to other networks.	LO: To recognise how networked devices make up the internet.	LO: To outline how websites can be shared via the World Wide Web (WWW).	LO: To describe how content can be added and accessed on the World Wide Web (WWW).	LO: To recognise how the content of the WWW is created by people.	LO: To evaluate the consequences of unreliable content.
Demonstrate how information is shared across the internet. Describe the internet as a network of networks. Discuss why a network needs protecting. Explain the key parts of a network and the role of the router in creating the internet. Demonstrate how routers enable networks to be connected together. Give examples of when network security is necessary.	Describe networked devices and how they connect. Recognise World Wide Web contains websites and web pages. Explain that the internet is used to provide many services. Explain how information is routed round the internet. Identify examples of websites and web pages and explain how they are different.	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. Identify what can/ can not be shared on the WWW. Give examples of devices that can access the WWW. Explain the origins of a website from the domain name.	Explain what media can be found on websites. Recognise content can be added to the WWW. Explain internet services can be used to create content online. Identify websites which allow content to be added and explain advantages and disadvantages of adding content. Contribute or edit another web page example.	Explain that websites and their content are created by people. Suggest who owns the content on websites. Explain that there are rules to protect content. Explain rules for using and sharing content. Identify who owns content on the WWW.	Explain that not everything on the World Wide Web is true. Explain why some information found online may not be honest, accurate, or legal. Explain need to think carefully before sharing or resharing content. Identify edited information and explain how false information can spread quickly online and the implications of this.
internet router	routing website	web address web page	domain web browser	ownership download	legal content

Learning Overview - COMPUTING YEAR 4					
Unit 2 – Theme(s) Creating Media - Audio Production (*Audiomass – please see adapted slides in Subject Curriculum Documents folder*)					
Safety Starter: Describe how to find out information about others by searching online.	**Safety Starter:** Explain ways that some of the information about anyone online could have been	**Safety Starter:** Recognise when someone is upset, hurt or angry online.	**Safety Starter:** Describe ways people can be bullied through a range of media (e.g. image, video, text, chat).	**Safety Starter:** Explain why people need to think carefully about how content they post might affect others, their feelings	**Safety Starter:** Analyse information to make a judgement about probable accuracy and I understand why it is important to make

	created, copied or shared by others.			and how it may affect how others feel about them (their reputation).	my own decisions regarding content and that my decisions are respected by others.
LO: To identify that sound can be recorded.	LO: To explain that audio recordings can be edited.	LO: To recognise the different parts of creating a podcast project.	LO: To apply audio editing skills independently.	LO: To combine audio to enhance my podcast project.	LO: To evaluate the effective use of audio.
Explain that the person who records the sound can say who is allowed to use it. Use a computer to record audio. Identify the input and output devices used to record and play sound. Give examples of what makes a good recording.	Discuss what sounds can be added to a podcast. Re-record voice to improve recording. Inspect soundwave view to know where to trim a recording. Demonstrate that they can align several audio tracks so that the recordings plan in a sequence	Plan appropriate content for a podcast. Save project so the different parts remain editable. Explain how sounds can be combined to make a podcast more engaging. Outline why selected sounds will add to the podcast's key message	Record content following a plan. Review the quality of recordings. Improve voice recordings. Demonstrate that imported audio complements voice recordings	Open a project to continue working on it. Arrange multiple sounds to create desired effect. Explain the difference between saving a project and exporting an audio file. Identify how and why their project could be improved	Listen to an audio recording to identify its strengths. Suggest improvements to an audio recording. Choose appropriate edits to improve podcast. Use editing tools to remove or correct the spoken content
audio production waveform	trimming audio alignment	layer podcast	voice track mute	export mp3 file	track playback

Learning Overview - COMPUTING YEAR 4					
Unit 3 – Theme(s) Programming – Repetition in Shapes (This is a Micro-bit unit Volcano animations | micro:bit (microbit.org))					
Safety Starter: Describe how to search for information within a wide group of technologies and make a judgement about	**Safety Starter:** Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app	**Safety Starter:** Explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true.	**Safety Starter:** Explain that technology can be designed to act like or impersonate living things (e.g. bots) and	**Safety Starter:** Explain what is meant by fake news e.g. why some people will create stories or alter photographs and put them	**Safety Starter:** Explain how using technology can be a distraction from other things, in both a positive and negative way.

the probable accuracy (e.g. social media, image sites, video sites).	purchases, pop-ups) and can recognise some of these when they appear online.		describe what the benefits and the risks might be.	online to pretend something is true when it isn't.	
LO: To use decomposition to create a dance sequence.	LO: To create a simple flowchart algorithm using repetition.	LO: To explain what 'repetition' means.	LO: To create a program with repetition.		LO: To present an animation.
Plan a dance sequence Create a dance sequence Create a flipbook animation of a dance sequence. Describe different kinds of animation.	Use an LED template to create an image of your dance steps Use the images to form an algorithm to produce a given outcome. Add a repeat block to the sequence. Explore the effect of placing the repeat block in different places.	Identify and decompose a process into stages Construct a simple flowchart algorithm Use repetition in algorithms Add numbers or words to an animation.	Follow an algorithm accurately to write a program. Use repetition in a program. Test and debug a program. Add numbers and words to a program.		Describe decomposition. Run a program. Describe a process. Describe decomposition in a variety of everyday contexts.
decomposition algorithm sequence	repeat block repetition	flowchart animation	debug loop decompose		run program

Learning Overview - COMPUTING YEAR 4					
Unit 4 – Theme(s) Data and Information – Data Logging Data handling | micro:bit (microbit.org)					
Safety Starter: Identify times or situations when someone may need to limit the amount of time they use technology e.g. suggest	**Safety Starter:** Describe strategies for keeping personal information private, depending on context.	**Safety Starter:** Explain that internet use is never fully private and is monitored, e.g. adult supervision.	**Safety Starter:** Describe how some online services may seek consent to store information about me; know how to respond appropriately	**Safety Starter:** Know what the digital age of consent is and the impact this has on online services asking for consent.	**Safety Starter:** Explain why I need to consider who owns internet content and whether I have the right to reuse it when searching online.

strategies to help with limiting this time.		and who to ask if I am not sure.		
LO: To explain that data can be used to answer questions.	LO: To use a digital device to collect data	LO: To create a digital device to collect data.	LO: To explore using data as a condition	LO: To write a program including conditions and selection
Recognise what we mean by data and give examples Classify data. Identify ways that data might be used. Consider ways that companies might use data.	Use data from a sensor to answer a given question. Identify that data from sensors can be recorded. Explain what data can be collected using sensors. Identify the mean temperature for each location.	Explain how repetition is used when programming sensors. Follow design criteria to design a product. Write algorithms that shows how a sensor will be used. Create an algorithm with 2 different sensors.	Know that data can be used as a condition in selection Explore the effects of changing the value of data in programs Write programs that use data as a condition Explore how sensors are used in smartphones.	Read and write algorithms using selection Identify how a digital assistant might work Write a program to use a micro:bit as a digital assistant Write a program without digital assistant planner.
data layout value	sensor micro bit	if then else forever	condition selection	digital assistant

Learning Overview - COMPUTING YEAR 4					
Unit 5 – Theme(s) Creating Media – Photo Editing (see Resources file in Subject Curriculum Documents for adapted PowerPoint slides using Photopea)					
Safety Starter: Give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.	**Safety Starter:** Explain how my online identity can be different to my offline identity.	**Safety Starter:** Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.	**Safety Starter:** Explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	**Safety Starter:** Describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms).	**Safety Starter:** Give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours.

LO: To explain that the composition of digital images can be changed.	LO: To explain that colours can be changed in digital images.	LO: To explain how cloning can be used in photo editing.	LO: To explain that images can be combined.	LO: To combine images for a purpose.	LO: To evaluate how changes can improve an image.
Improve an image by rotating it. Use photo editing software to crop an image. Explain why an image might need to be cropped. Purposefully crop images using tools.	Experiment with different colour effects. Explain that different colour effects make people think and feel different things. Explain decision for using certain colour effects. Suggest further options for different scenarios.	Identify how a photo edit can be improved. Add to the composition of an image by cloning. Remove parts of an image using cloning. Purposefully combine skills to change the composition of an image.	Experiment with tools to select and copy part of an image. Use a range of tools to copy between images. Explain why photos might be edited. Purposefully combine images	Describe the intended image being created. Choose suitable images for a project. Create a project that is a combination of other images. Explain how images need o work together to create realistic scenes	Combine text and images to complete a project. Review images against a given criteria. Use feedback to guide making changes. Evaluate and reflect on the impact that any changes have made on an image
crop rotate composition	hue recolour sepia vignette	clone retouch	copy paste adjust	composite foreground background	overlap blur zoom

Learning Overview - COMPUTING YEAR 4					
Unit 6 – Theme(s) Programming – Repetition in Games					
Safety Starter: Explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.	**Safety Starter:** Explain ways that some of the information about anyone online could have been created, copied or shared by others.	**Safety Starter:** Recognise when someone is upset, hurt or angry online.	**Safety Starter:** Describe ways people can be bullied through a range of media (e.g. image, video, text, chat).	**Safety Starter:** Explain why people need to think carefully about how content they post might affect others, their feelings and how it may affect how	**Safety Starter:** Analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that

				others feel about them (their reputation).	my decisions are respected by others.
LO: To develop the use of count-controlled loops in a different programming environment.	LO: To explain that in programming there are infinite loops and count controlled loops.	LO: To develop a design that includes two or more loops which run at the same time.	LO: To modify an infinite loop in a given program.	LO: To design a project that includes repetition.	LO: To create a project that includes repetition.
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. To use snippets of code to produce further shapes.	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. Give examples of when to use different types of loop.	Choose which action will be repeated for each object. Explain what the outcome of the repeated action should be. Evaluate the effectiveness of the repeated sequences used in a program. Describe the key steps required to complete the task.	Identify which parts of a loop can be changed. Re-use existing code snippets on new sprites. Explain the effect on changes made. Identify how additional sprites may need to be modified to enhance the game.	Select key parts of a given project to use in own design. Develop own design explaining what project will do. Evaluate the use of repetition in a project. Include additional code that enhances the function of the game and reflects design choices	Build a program that follows a design. Evaluate the steps followed when building a project. Refine the algorithm in a design. Run their code and explain how it meets the requirements of the task
snippet code loop (repeating command) outcome	count-controlled loop infinite loop	infinite loop forever loop modify repetition		rotate algorithm	refine debug evaluate

Learning Overview - COMPUTING YEAR 5					
Unit 1 – Theme(s) Computing Systems and Networks – Systems & Searching					
Safety Starter: Explain how identity online can be copied, modified or altered.	**Safety Starter:** Demonstrate how to make responsible choices about having an online identity, depending on context.	**Safety Starter:** Give examples of technology specific forms of communication (e.g. emojis, memes and GIFs).	**Safety Starter:** Explain that there are some people I communicate with online who may want to do me or my friends harm. recognise that this is not my / our fault.	**Safety Starter:** Describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive	**Safety Starter:** Explain how someone can get help if they are having problems and identify when to tell a trusted adult.

				contributions. (e.g. gaming communities or social media groups).	
LO: To explain that computers can be connected together to form systems.	LO: To recognise the role of computer systems in our lives.	LO: To experiment with search engine.	LO: To describe how search engines select results.	LO: To explain how search results are ranked.	LO: To recognise why the order of results is important, and to whom.
Explain that systems are built using a number of parts. Describe that a computer system features inputs, processes, and outputs. Explain that computer systems communicate with other devices. Explain the different steps that make up a system for a particular task.	Identify the human elements of a computer system. Identify tasks that are managed by computer systems. Explain benefits of a given computer system. Explain how sensors are part of a computer system. Give examples of how they can stay safe online and protect their private information.	Make use of a web search to find specific information. Refine a web search. Compare results from different search engines. Identify the different ways people can search online. Explain how they refined a search for a specific purpose.	Explain why we need tools to find things online. Relate a search term to the search engine's index. Recognise role of web crawlers in creating an index. Apply their understanding of indexing to create own index and relate this to the way search engines use indices.	Order a list by rank. Explain that a search engine follows rules to rank results. Give examples of criteria used by search engines to rank results. Identify and use features of a typical webpage in own design. Apply principles of search engine optimisation to improve own webpage.	Recognise some of the limitations of search engines. Explain how search engines make money. Describe some of the ways that search results can be influenced. Identify and compare online and offline advertising. Explain how online advertising is a source of income for search engines.
system/digital system connection	digital input digital output	search engine process	index crawler	search engine optimisation (SEO) algorithm	web crawler ranking

Learning Overview - COMPUTING YEAR 5					
Unit 2 – Theme(s) Creating Media - Video Production					
Safety Starter: Demonstrate how to support others (including those who are having difficulties) online.	**Safety Starter:** Search for information about an individual online and summarise the information found.	**Safety Starter:** Describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.	**Safety Starter:** Recognise online bullying can be different to bullying in the physical world and can describe some of those differences.	**Safety Starter:** Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	**Safety Starter:** Explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.

Lo: To explain what makes a video effective	LO: To use a digital device to record a video	LO: To capture video using a range of techniques.	LO: To create a storyboard.	LO: To identify that video can be improved through reshooting and editing.	LO: To consider the impact of the choices made when making and sharing a video.
Explain that video is a visual media format Identify features of videos Compare features in different videos Discuss reasons for the purpose behind videos and how they are different.	Identify and find features on a digital video recording device Experiment with different camera angles Make use of a microphone Suggest other techniques that could be used.	Suggest filming techniques for a given purpose. Capture video using a range of filming techniques. Review the effectiveness of own video. Purposefully use filming techniques that relate to a storyboard.	Outline the scenes of own video. Decide which filming techniques to use. Create and save video content. Combine audio with video to enhance the visuals on screen.	Store, retrieve, and export a video recording to a computer. Explain how to improve a video by reshooting and editing. Select the correct tools to make edits to a video. Purposefully use edits to produce an effective video	Make edits to a video and improve the final outcome. Recognise that choices when making a video will impact on the quality of the final outcome. Evaluate own video and share opinions. Identify how and why their project could be improved
talking head panning close up	mid range long shot	static camera pan and tilt zoom	scene script	split trim	reorder export

Learning Overview - COMPUTING YEAR 5					
Unit 3 – Theme(s) Programming – Selection in Physical Computing (replaced with Microbit unit) Musical micro:bit | micro:bit**Music one**					
Safety Starter: Identify a range of ways to report concerns and access support both in school and at home about online bullying.	**Safety Starter:** Describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).	**Safety Starter:** Explain the benefits and limitations of using different types of search technologies. Explain how some technology can limit the information I aim presented with .	**Safety Starter:** Explain what is meant by 'being sceptical'; give examples of when and why it is important to be 'sceptical'.	**Safety Starter:** Evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results.	**Safety Starter:** Explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence.

LO: To read, evaluate and write algorithms.	LO: To extend understanding of repetition and inputs.	LO: To extend understanding of selection by following and modifying algorithms.	LO: To develop understanding of inputs and outputs using micro bits.	LO: To recap and apply learning by completing programming challenges.
To read and interpret a range of algorithms To evaluate algorithms To write algorithms for a given audience. Select an algorithm that is most effective for the task and explain why.	To use existing knowledge to improve programs To write and debug musical programs To experiment (tinker) with the micro:bit to make music Explain their use of repetition and selection in the program.	To analyse and modify algorithms To identify patterns in algorithms To write algorithms using repetition and selection. Write and test a more complex algorithm from scratch.	To identify how inputs are used in programs To write programs that use inputs and selection To write and evaluate algorithms Compose and select different melodies, played when certain inputs are used.	To modify programs to meet given criteria To decompose learning from the unit To evaluate the micro:bit as a music-making device Provide and explain examples of the program after changes have been made in line with the challenges set.
repetition selection forever	input phrase[musical]	modify	input/output selection	

Learning Overview - COMPUTING YEAR 5					
Unit 4 – Theme(s) Data and Information – Flat-File Databases j2data					
Safety Starter: Identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads.	**Safety Starter:** Describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, influencers).	**Safety Starter:** Explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others.	**Safety Starter:** Describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.	**Safety Starter:** Explain what is meant by a 'hoax'. explain why someone would need to think carefully before they share.	**Safety Starter:** Describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively.

LO: To use a form to record information.	LO: To compare paper and computer-based databases.	LO: To outline how you can answer questions by grouping and then sorting data.	LO: To explain that tools can be used to select specific data.	LO: To explain that computer programs can be used to compare data visually.	LO: To use a real-world database to answer questions.
Explain how information can be recorded. Order, sort, and group own data cards. Create a database using cards. Comment on the effectiveness of this method. Suggest alternative methods.	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. Suggest other fields that could be added to a database.	Explain that data can be grouped using chosen values. Group information using a database. Combine grouping and sorting to answer specific questions. Explain why data might not be accurate, give examples.	Choose multiple criteria to answer a given question. Choose which field and value are required to answer a given question. Outline how 'AND' and 'OR' can be used to refine data selection. Explain the difference between using "AND" and "OR"	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. Can explain which chart type is appropriate for particular questions.	Ask questions that will need more than one field to answer. Present own findings to a group. Refine a search in a real-world context. Demonstrate how they used filters or sorting options to narrow down their search.
database data card record field		criteria value	data type refine	chart filter	shortlist

Learning Overview - COMPUTING YEAR 5					
Unit 5 – Theme(s) Creating Media – Introduction to Vector Graphics					
Safety Starter: Describe some strategies, tips or advice to promote health and wellbeing with regards to technology	**Safety Starter:** Recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals.	**Safety Starter:** Explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a	**Safety Starter:** Explain what a strong password is and demonstrate how to create one	**Safety Starter:** Explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.	**Safety Starter:** Explain what app permissions are and can give some examples.

		trusted adult before purchasing.			
LO: To identify that drawing tools can be used to produce different outcomes.	LO: To create a vector drawing by combining shapes.	LO: To use tools to achieve a desired effect.	LO: To recognise that vector drawings consist of layers.	LO: To group objects to make them easier to work with.	LO: To apply what I have learned about vector drawings.
Experiment with the shape and line tools. Recognise that vector drawings are made using shapes. Discuss how vector drawings are different from paper-based drawings. Create custom fill colours or add extra details.	Identify the shapes used to make a vector drawing. Move, resize, and rotate objects that have been duplicated. Explain that each element added to a vector drawing is an object. Position objects to make more complex shapes.	Use the zoom tool to add detail to drawings. Modify objects to create a new image. Explain how alignment grids and resize handles can be used to improve consistency. Manipulate objects to create desired effects to create a drawing with consistent proportions.	Use layering to create an image. Identify that each added object creates a new layer in the drawing. Change the order of layers in a vector drawing. Position/layer objects to make more complex shapes.	Copy part of a drawing by duplicating several objects. Recognise when to group and ungroup objects. Reuse a group of objects to further develop own vector drawing. Ungroup objects to make a change then regroup as necessary.	Create a vector drawing for a specific purpose. Reflect on the skills used and why. Compare vector drawings to freehand paint drawings. Identify how and why their project could be improved.
vector vector drawing	duplicate rotate	alignment resize handle	layer layering	manipulate grouping/ungroup	freehand

Learning Overview - COMPUTING YEAR 5					
Unit 6 – Theme(s) Programming – Selection in Quizzes					
Safety Starter: Assess and justify when it is acceptable to use the work of others.	**Safety Starter:** Give examples of content that is permitted to be reused and know how this content can be found online.	**Safety Starter:** Recognise online bullying can be different to bullying in the physical world and can describe some of those differences.	**Safety Starter:** Describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	**Safety Starter:** Identify a range of ways to report concerns and access support both in school and at home about online bullying.	**Safety Starter:** Describe the helpline services which can help people experiencing bullying, and how to access them (e.g. Childline or The Mix).

LO: To explain how selection is used in computer programs.	LO: To relate that a conditional statement connects a condition to an outcome.	LO: To explain how selection directs the flow of a program.	LO: To design a program which uses selection.	LO: To create a program which uses selection.	LO: To evaluate my program.
Identify conditions in a program. Modify a condition in a program. Recall how conditions are used in selection. Explain what will happen if a condition is “true”.	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. Explain the outcome of a program in relation to the 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. Explain how a question can be answered in more than one way and the condition can still be true.	Outline a given task. Use a design format to outline a project. Identify the outcome of user input in an algorithm. Explain how selection will control the flow of their program.	Implement algorithm to create the first section of a program. Test own program. Share program with others. Evaluate a program and provide positive feedback.	Identify the setup code needed in a program. Identify ways the program could be improved. Extend own program further. Explain how they used evaluation questions to extend their programs.
condition conditional selection	infinite loop forever loop outcome	program flow branch	selection command algorithm	implement design debug	setup code operator

Learning Overview – COMPUTING YEAR 6					
Unit 1 – Theme(s) Computing Systems and Networks – Communication & Collaboration					
Safety Starter: Identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and	**Safety Starter:** Describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and can give examples of how to get help, both on and offline.	**Safety Starter:** Explain the importance of asking until I get the help needed.	**Safety Starter:** Explain how sharing something online may have an impact either positively or negatively.	**Safety Starter:** Describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how	**Safety Starter:** Describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.

reject inappropriate representations online.				to support them if others do not.	
LO: To explain the importance of internet addresses.	LO: To recognise how data is transferred across the internet.	LO: To explain how sharing information online can help people to work together.	LO: To evaluate different ways of working together online.	LO: To recognise how we communicate using technology.	LO: To evaluate different methods of online communication.
Explain that internet devices have addresses. Recognise that data is transferred using agreed methods. Describe how computers use addresses to access websites. Explain and give examples of different types of addresses including physical and online. Explain the function of a Domain Name Server [DNS]	Explain that data is transferred over networks in packets. Explain that all data transferred over the internet is in packets. Identify and explain the main parts of a data packet. Explain what a data packet is and it`s role in sending data across the internet. Apply the principles of transferring data in packets to a variety of media.	Explain that the internet allows different media to be shared. Send information over the internet in different ways. Recognise how to access shared files stored online. Find appropriate online content [text and images] and arrange on slides effectively. Explain their choices. Give examples of other media types they could use to collaborate.	Identify different ways of working together online. Recognise that working together on the internet can be public or private. Explain how the internet enables effective collaboration. Explain “remixing” as a different example of collaboration. Give examples of appropriate collaboration.	Identify that there are a variety of ways to communicate over the internet. Explain the different ways in which people communicate. Choose methods of communication to suit particular purposes. Identify a range of ways of communication, including the internet. Explain their choice of communication methods.	Explain that communication on the internet may not be private. Compare different methods of communicating on the internet. Decide when information should and should not be shared online. Use own criteria to select and apply methods of communication, explaining their choices.
Internet Protocol (IP) Domain Name Server (DNS)	packet header data payload	media	remix public/private	protocol	Short Messaging Service (SMS) electronic communication

Learning Overview - COMPUTING YEAR 6					
Unit 2 – Theme(s) Creating Media – Web Page Creation					
Safety Starter: Explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and	**Safety Starter:** Explain the ways in which anyone can develop a positive online reputation.	**Safety Starter:** Explain strategies anyone can use to protect their ‘digital personality’ and online reputation, including degrees of anonymity.	**Safety Starter:** Describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me.	**Safety Starter:** Explain how someone would report online bullying in different contexts.	**Safety Starter:** Explain how search engines work and how results are selected and ranked.

others; and who can help if someone is worried about this.					
LO: To review an existing website and consider its structure.	LO: To plan the features of a web page.	LO: To consider the ownership and use of images (copyright).	LO: To recognise the need to preview pages.	LO: To outline the need for a navigation path.	LO: To recognise the implications of linking to content owned by other people.
Explore a website. Discuss the different types of media used on websites. Know that websites are written in HTML. Explain what HTML is in their own words.	Recognise the common features of a web page. Suggest media to include on own page. Draw a web page layout that suits purpose. Follow instructions to add an additional page to their site.	Describe what is meant by the term 'fair use'. Find copyright-free images Say why copyright-free images should be used. State options/places for sourcing copyright-free images.	Add content to own web page. Preview what own web page looks like. Evaluate what web page looks like on different devices and suggest/make edits. Use additional features [editing, image carousels, maps]	Explain what a navigation path is. Describe why navigation paths are useful. Make multiple web pages and link them using hyperlinks. Enhance website with embedded content.	Create hyperlinks to link to other people's work. Explain the implication of linking to content owned by others. Evaluate the user experience of a website. Identify how and why their project can be improved.
browser hypertext markup language (html)	header format logo	copyright fair use	preview homepage	breadcrumb trail hyperlink navigate	linking embedding

Learning Overview - COMPUTING YEAR 6					
Unit 3 – Theme(s) Programming – Variables in Games					
Safety Starter: Explain how to use search technologies effectively.	**Safety Starter:** Describe how some online information can be opinion and can offer examples.	**Safety Starter:** Explain how and why some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities of those promoting it does not necessarily make it	**Safety Starter:** Define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad	**Safety Starter:** Understand the concept of persuasive design and how it can be used to influences peoples' choices.	**Safety Starter:** Demonstrate how to analyse and evaluate the validity of 'facts' and information and explain why using these strategies are important.

		true, fair or perhaps even legal.	targeting' and targeting for fake news).		
LO: To define a 'variable' as something that is changeable.	LO: To explain why a variable is used in a program.	LO: To choose how to improve a game by using variables.	LO: To design a project that builds on a given example.	LO: To use my design to create a project.	LO: To evaluate my project.
Identify examples of information that is variable. Identify that variables can hold numbers or letters. Explain the way a variable change can be defined. Compare a completed project that includes variables with their design.	Explain that a variable has a name and a value. Recognise that the value of a variable can be changed. Identify a program variable as a placeholder in memory for a single value. Explain a different way to display variables.	Recognise that the value of a variable can be used by a program. Make use of an event in a program to set a variable. Decide where in a program to change a variable. Predict what will happen when a variable is updated more than once	Choose the artwork for a project. Create algorithms for a project. Explain design choices. Explain the concept of program flow and how they have applied this to their own algorithms.	Create the artwork for a project. Choose a name that identifies the role of a variable. Test the code that has been written. Evaluate their project and explain how it delivers against the original requirement.	Use variables to extend own game. Identify ways that own game could be improved. Share own game with others. Show how they would use constructive feedback in future projects, give examples.
variable value	placeholder name	event operator block paddle	algorithm	error debug	URL

Learning Overview - COMPUTING YEAR 6					
Unit 4 – Theme(s) Data and Information – Spreadsheets					
Safety Starter: Explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this.	**Safety Starter:** Describe the difference between online misinformation and dis-information.	**Safety Starter:** Explain why information that is on a large number of sites may still be inaccurate or untrue. assess how this might happen (e.g. the	**Safety Starter:** Identify, flag and report inappropriate content.	**Safety Starter:** Describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.	**Safety Starter:** Recognise and can discuss the pressures that technology can place on someone and how / when they could manage this.

		sharing of misinformation or disinformation).			
LO: To create a data set in a spreadsheet.	LO: To build a data set in a spreadsheet.	LO: To explain that formulas can be used to produce calculated data.	LO: To apply formulas to data.	LO: To create a spreadsheet to plan an event.	LO: To choose suitable ways to present data.
Collect data for spreadsheet. Enter data into a spreadsheet. Suggest how to structure own data. Suggest what else could be recorded on a spreadsheet.	Explain what an item of data is. Choose an appropriate format for a cell. Apply an appropriate format to a cell. Explain why it is useful to apply formatting to cells in spreadsheets.	Construct a formula in a spreadsheet. Explain which data types can be used in calculations. Identify that changing inputs changes outputs. Use formulas to calculate further costs.	Calculate data using different operations. Create a formula which includes a range of cells. Apply a formula to multiple cells by duplicating it. Give examples of why they would use applying and duplicating and the advantages of this.	Explain why data should be organised. Use a spreadsheet to answer questions. Apply a formula to calculate the data needed to answer questions. Give examples of other information they could provide from their spreadsheets.	Suggest when to use a table or chart. Use a chart to show the answer to questions. Produce a chart from a spreadsheet. Provide further examples of where a chart would be effective.
spreadsheet column	cell cell reference data item format	formula data type	function sigma duplicate	data set subtotal	software chart

Learning Overview - COMPUTING YEAR 6					
Unit 5 – Theme(s) Creating Media – 3D Modelling					
Safety Starter: Recognise features of persuasive design and how they are used to keep users engaged (current and future use).	**Safety Starter:** Assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise).	**Safety Starter:** Describe effective ways people can manage passwords (e.g. storing them securely or saving them in the browser).	**Safety Starter:** Explain what to do if a password is shared, lost or stolen.	**Safety Starter:** Describe how and why people should keep their software and apps up to date, e.g. auto updates.	**Safety Starter:** Describe simple ways to increase privacy on apps and services that provide privacy settings.

LO: To recognise that you can work in three dimensions on a computer.	LO: To identify that digital 3D objects can be modified.	LO: To recognise that objects can be combined in a 3D model.	LO: To create a 3D model for a given purpose.	LO: To plan my own 3D model.	LO: To create my own digital 3D model.
Add 3D shapes to a project. Move 3D shapes relative to one another. View 3D shapes from different perspectives. Position and view shapes from different perspectives.	Recolour a 3D object. Resize an object in three dimensions. Lift/lower 3D objects. Use size guides to accurately resize 3D objects relative to each other	Rotate objects in three dimensions. Group 3D objects. Duplicate 3D objects. Duplicate and ungroup objects to create variations of models	Accurately size 3D objects. Combine a number of 3D objects. Show that placeholders can create holes in 3D objects. Use a wider range of 3D shapes.	Analyse a 3D model. Choose objects to use in a 3D model. Combine objects in a design. Choose 3D shapes that can be combined to create more complex shapes	Construct a 3D model based on a design. Explain how own 3D model could be improved. Modify own 3D model to improve it. Identify how and why their project could be improved.
dimension 3D modelling workplane	lift modify	grouping	placeholder hollow	architecture	proportion modify

Learning Overview - COMPUTING YEAR 6					
Unit 6 – Theme(s) Programming - Sensing Movement					
Safety Starter: Describe ways in which some online content targets people to gain money or information illegally; describe strategies to help me	**Safety Starter:** Know that online services have terms and conditions that govern their use.	**Safety Starter:** Demonstrate the use of search tools to find and access online content which can be reused by others.	**Safety Starter:** Demonstrate how to make references to and acknowledge sources I have used from the internet.	**Safety Starter:** Describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me.	**Safety Starter:** Explain how someone would report online bullying in different contexts.

identify such content (e.g. scams, phishing).					
LO: To create a program to run on a controllable device.	LO: To explain that selection can control the flow of a program.	LO: To update a variable with a user input.	LO: To use a conditional statement to compare a variable to a value.	LO: To design a project that uses inputs and outputs on a controllable device.	LO: To develop a program to use inputs and outputs on a controllable device.
Apply knowledge of programming to a new environment. Test program on an emulator. Transfer program to a controllable device. Discuss the limitations of an emulator to test code.	Identify examples of conditions in the real world. Use a variable in an if, then, else statement to select the flow of a program. Determine flow of a program using selection. Relate the use of selection within the algorithm to other real world systems.	Experiment with different physical inputs. Explain that checking a variable doesn't change its value. Use a condition to change a variable. Add another condition to the program.	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. Create more accurate compasses.	Decide what variables to include in a project. Design the algorithm for a project. Design the program flow for a project. Suggest additional features to add to the algorithm.	Create a program based on own design. Test own program against own design. Use a range of approaches to find and fix bugs. Explain to others about any bugs that were found and how they were fixed.
Microbit emulator USB	variable flow	accelerometer	comparison operators compass	program flow isolate code substitute code	simulate download