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Creating Media	Programming	Computing Systems and Networks	Data and Information

EYFS	Autumn	Spring	Summer
	What is Technology? **Overview: I**dentifying technology and using a mouse and a keyboard. ***(Through using technology in the classroom such as keyboards and monitors in role play home corner, CD players outside, and starting to learn to use IWB in classroom to mark make and play games.)*** **Knowledge:** ● Know what the word technology means **Skills:** ● Use a mouse ● Use a keyboard to type ● Identify technology **Key Vocab:** technology, mouse, keyboard **Early learning Goals:** ● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Explore how things work (Understanding the World)	**Communicating on a computer** **Overview:** Using a computer to write basic words and enter text. ***(Teacher lead learning to print name on IWB keyboard first then use laptops to write name - then opportunities for children to use this technology and within the learning environment)*** **Knowledge:** ● Know that computers can be used to communicate **Skills:** ● Use a computer to write ● Enter text into a computer **Key Vocab:** Computer, keyboard, communicate, write **Early learning Goals:** ● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Explore how things work (Understanding the World)	**Grouping objects** **Overview:** Identifying the features of objects and knowing that they can be counted. ***(Linked to minibeasts. Grouping sorting and classifying different minibeasts teacher led and within the environment - create an online class pictogram to collate favourite minibeasts)*** **Knowledge:** ● Know that objects can be counted **Skills:** ● Collect simple data ● Identify some features of an object **Key Vocab:** identify, object, count **Early learning Goals:** ● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) ● Be confident to try new activities and show independence, resilience and

	• Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time' (Physical Development) • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (Personal, Social and Emotional Development) • Explain the reasons for rules, know right from wrong and try to behave accordingly (Personal, Social and Emotional Development) • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (Expressive Arts and Design)	• Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (Personal, Social and Emotional Development) • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (Expressive Arts and Design) • Develop their small motor skills so that they can use a range of tools competently, safely and confidently (Physical Development) • Explore, use and refine a variety of artistic effects to express their ideas and feelings (Expressive Arts and Design)	perseverance in the face of challenge (Personal, Social and Emotional Development)
	Expressing Myself Digitally **Overview:** Using a painting programme to digitally make marks on a computer screen. ***(Through how to change programs on the IWB to explore with making marks in lots of ways, using touch screen laptops in environment for children to explore mark making.)*** **Knowledge:** • Know that you can draw on a computer **Skills:** • Use a computer to paint a picture • Digitally make marks on a computer screen **Key Vocab:** paint, screen, computer, draw	**Following 1-step Commands** **Overview:** Acting out words and predicting what this might look like. ***(Teacher inputs linked to Pancake making - acting out the sequence / instructions to make a pancake and Jack and the beanstalk retelling the story with actions)*** **Knowledge:** • Know words that can be acted out **Skills:** • Act out a given word **Key Vocab:** Act, Predict	**calling 1-step commands** **Overview:** Recalling words which can be acted out and predicting what they might look like. **Knowledge:** • Recall words that can be acted out **Skills:** • Predict what a word might look like acted out **Key Vocab:** predict, act, recall **Early learning Goals:**

	Early learning Goals: ● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Explore how things work (Understanding the World) ● Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (Personal, Social and Emotional Development) ● Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (Expressive Arts and Design) ● Develop their small motor skills so that they can use a range of tools competently, safely and confidently (Physical Development) ● Explore, use and refine a variety of artistic effects to express their ideas and feelings (Expressive Arts and Design)	**Early learning Goals:** ● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (Personal, Social and Emotional Development) ● Increasingly follow rules, understanding why they are important (Personal, Social and Emotional Development)	● Match their developing physical skills to tasks and activities in the setting (Physical Development) ● Show resilience and perseverance in the face of a challenge (Personal, Social and Emotional Development) ● Be confident to try new activities and show independence, resilience and perseverance in the face of challenge (Personal, Social and Emotional Development) ● Increasingly follow rules, understanding why they are important (Personal, Social and Emotional Development)
	Within continuous provision: Children use - **beebots to develop early programing skills** - **ipads to play on and also take photos and record their learning independently,** - **regularly use the IWBs to play games / mark make / write within lessons and during CP** - **use CD players outside to play music,** - **children get to come with a teacher to photocopy best examples of their independent work.** - **(Ongoing project to use technology to record poems and books taught / learnt within school and allow children to access this online but also using QR codes in school)**		

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Yr 1	Autumn	Spring	Summer
	Technology around us - **Overview:** Recognising technology in school and using it responsibly. **Knowledge:** • Name the main parts of a computer • Explain technology as something that helps us • Tell you that writing on a computer is called typing **Skills:** • Switch on and log into a computer • Use a mouse to create a picture • Type on a computer • Use the arrow keys to move the cursor • Delete letters • Locate examples of technology **Key Vocab:** Computer, mouse, keyboard, screen, click, drag, technology, double click, shift. space bar, capital letter, full stop **Digital Painting -** **Overview**: Choosing appropriate tools in a	**Digital Writing -** **Overview**: Using a computer to create and format text, before comparing non-digital. **Knowledge:** • Explain what the different keys I have learnt about do • Say what tool I used to change the text • Say whether I prefer using a computer to write or a pencil and paper **Skills:** • Open a word processor • Recognise and identify keys on a keyboard • Enter text in a computer • Use letter, number and space keys • Use backspace to remove text • Type capital letters • Identify the toolbar and use bold, italic and underline • Select a word by double clicking • Change the font • Use undo to remove changes • Write a message on a computer and paper **Key Vocab:** word processor, keyboard, keys, letters, Microsoft Word, Google Docs. numbers, space, Capital letters, toolbar, bold, italic, underline, backspace, text cursor, cursor, select, font **Grouping Data** **Overview**: Exploring object labels, then using	**Moving a Robot -** **Overview**: Writing short algorithms and programs for floor robots, and predicting program outcomes. **Knowledge:** • Recall words that can be acted out • Explain the difference between forwards and backwards movements • Compare left and right • Explain what my program should do • Know what debugging means • Explain what an algorithm is **Skills:** • Predict the outcome of a command on a device • Match a command to an outcome • Run a command on a device • Follow an instruction • Give directions • Predict the outcome of a sequence that uses forwards and backwards commands • Experiment with turn and move commands to move a robot • Predict the outcome of a sequence that follows up to four commands • Choose the order of commands in a sequence • Debug my program • Identify several solutions to a problem • Start a sequence in the same place **Key Vocab:** forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route, debug **Programming and Animations**

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Yr 1	program to create art, and making comparisons with working non-digitally. **Knowledge:** • Explain which tools I am using • Know that different paint tools do different jobs • Say which tools were helpful and why • Explain that pictures can be made in different ways • Explain the difference between a digital painting and a conventional painting **Skills:** • Make digital marks, lines and shapes on a screen • Use paint tools to draw a picture • Use shape and line tools and colour to recreate the work of an artist • Choose appropriate colours and shapes • Make dots of colour on a page • Change colour and brush sizes **Key Vocab:** paint program, tool, paintbrush, erase, fill, undo, primary colours, shape tools, brush style, brush size	them to sort and group objects by properties. **Knowledge:** • Explain and describe what an object is • Say how and why I have chosen to group certain objects together • Decide for myself how to group objects • Explain the difference between objects and groups of objects • Share what I have found • Know what a property is **Skills:** • Use labels to describe objects • Match objects to different groups • Identify the label for a group of objects • Count objects • Group objects • Count a group of objects • Find objects with similar properties • Group similar objects • Group objects in more than one way • Count how many objects share a property • Choose how to group objects • Describe groups of objects • Record how many objects are in a group • Record what I have found out **Key Vocab:** object, label, group, search, image, group, object, label, image, property, colour, size, shape, object, data, more, less, most, fewest, the same	**Overview**: Designing and programming the movement of a character on screen to tell stories. **Knowledge:** • Know where to find the commands to move a sprite • Know what a sprite is • Know the difference between different programming tools • Say what happens when I change a value • Explain that a project can include more than one sprite **Skills:** • Use commands to move a sprite • Use more than one command block • Use a start block • Run my program • Change the value • Delete a sprite • Add command blocks to each of my sprites • Decide how each sprite will move • Add command blocks based on my algorithm • Test programs I have created • Use sprites that match my design • Find blocks which have numbers • Choose appropriate artwork for my project • Decide how each sprite will move • **Key Vocab:** Scratch Jr, Bee-Bot, command, sprite, compare, programming, programming area, command block, joining, start block, run, program, background, delete, reset, predict, effect, change, value, instructions, algorithm, appropriate, design, debug
Yr 2	**Information Technology around us -** **Overview:** Identifying IT and how its responsible use improves our world in	**Creating Music (cross-curricular with music) -**	**Robot Algorithms -** **Overview:** Creating and debugging programs,

	school and beyond. **Knowledge:** ● Describe uses of computers ● Identify that a computer is part of information technology ● Explain the purpose of IT in the home ● Talk about the uses of IT ● Explain how IT is used in a shop ● Know that IT can be connected ● Explain how IT helps people ● Explain the different uses of IT ● Explain and recognise how to use IT responsibly ● Say how rules/guides can help me ● Identify the choices I can make when using IT ● Explain guidance for using IT in different environments **Skills:** ● Open a file ● Move and resize images ● Enjoy a variety of activities ● Find examples of IT ● Identify examples of computers ● Compare types of IT **Key Vocab:** Information Technology, computer, barcode, scanner, scan	**Overview:** Using a computer as a tool to explore rhythms and melodies, before creating a musical composition. **Knowledge:** ● Explain how images connect to sounds ● Explain how an idea relates to a piece of music ● Explain my choices ● Explain how I made my work better **Skills:** ● Use a computer to experiment with pitch and duration ● Use a computer to create a musical pattern using three notes ● Refine my musical pattern on a computer ● Save and Reopen my work **Key Vocab:** Music, pattern, rhythm, pulse, pitch, tempo, instruments, save, open, edit	and using logical reasoning to make predictions. **Knowledge:** ● Explain the difference in the outcome between two sequences that consist of the same commands ● Explain the choices I made for my mat design ● Explain what my algorithm should achieve ● Explain what a program is **Skills:** ● Follow instructions given by someone else ● Choose a series of words that can be enacted as a sequence ● Give clear and unambiguous instructions ● Create different algorithms for a range of sequences ● Use an algorithm to program a sequence on a floor robot ● Follow a sequence ● Predict the outcome of a sequence ● Identify different routes around my mat ● Test my mat to ensure it is useable ● Create an algorithm to meet my goal ● Use my algorithm to create a program ● Plan algorithms for different parts of a task ● Test and debug each part of a program ● Put together the different parts of my program ● Compare my prediction to the outcome of a sequence **Key Vocab:** Instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, route, mat, algorithm, debugging, program
Yr 2	**Digital Photography -** **Overview:** Capturing and changing digital photographs for different purposes. **Knowledge:**	**Pictograms -** **Overview:** Collecting data in tally charts and using attributes to organise and present data	**Programming Quizzes -** **Overview:** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

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	• Recognise what devices can take photos • Talk about how to take a photo • Explain what I did to capture a digital photo • Explain the process of taking a good photo • Explain why a photo looks better in portrait or landscape • Discuss how to take a good photograph • Explore the effect light has on a photo • Experiment with a different light sources • Explain why a picture may be unclear • Recognise that images can be changed • Explain my choices **Skills:** • Take photos in both landscape and portrait • Identify what is wrong with a photograph • Improve a photo by retaking it • Use a tool to achieve a desired effect • Apply a range of photography skills (listed above) to capture and edit an image • Recognise which photos have been changed • Identify which photos are real and which have been changed **Key Vocab:** device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, lighting	on a computer. **Knowledge:** • Explain what a tally chart is • Explain what a pictogram is and what it shows • Answer more than/ less than and most/ least questions about an attribute • Share what I have found out using a computer • Give examples of why information should not be shared. **Skills:** • Record data in a tally chart • Represent a tally count as a total • Compare totals in a tally chart • Enter data on a computer • Use a tally chart to create a pictogram • Tally objects using a common attribute • Create a pictogram to arrange objects by attribute • Collect data I used • Create a pictogram and draw a conclusion from it • Use a computer program to present information in different ways • Choose a suitable attribute to compare people **Key Vocab:** more than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, compare, count, explain, more common, least common	**Knowledge:** • Explain what a program needs to be started • Explain how my project fits my design • Explain the choices I made for my program **Skills:** • Identify the start of a sequence • Show how to run my program • Predict the outcome of a sequence of commands • Match two sequences with the same outcome • Change the outcome of a sequence of commands • Work out the actions of a sprite in an algorithm • Decide which blocks to use to meet the outcome of a design • Build the sequences of blocks I need • Choose suitable backgrounds for a design • Choose suitable characters for a design • Create a program based on the new design • Choose suitable images for a design • Create an algorithm from scratch • Build sequences of blocks to match my design • Debug • Improve my project by adding additional features • Compare my project to my design **Key Vocab:** Sequence, command, program, run, start, predict, blocks, sprite, algorithm, actions, design, modify, change, build, match, debug, program, compare, features, evaluate
Yr 3	**Connecting Computers -** **Overview:** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	**Desktop publishing -** **Overview:** Creating documents by modifying text, images, and page layouts for a specified purpose.	**Sequencing sounds -** **Overview:** Creating sequences in a block-based programming language to make music. **Knowledge:**

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	Knowledge: • Explain that digital devices accept inputs • Explain that digital devices produce outputs • Explain how I use digital devices for different activities • Recognise and explain the similarities between using digital and non-digital devices • Suggest differences between digital and non-digital devices • Explain that there are different connections • Explain how messages are passed through multiple connections • Discuss why we need a network switch • Know that a computer network is made up of a number of devices • Explain the role of a switch, server and a wireless access point • Explain how devices in a network are connected • Explain the benefits of computer networks **Skills:** • Follow a process • Classify input and output devices • Model a simple process • Design a digital device • Demonstrate how information can be passed between devices • Identify network devices around me **Key Vocab:** digital device, input, output, process, program, connection, network, network switch, wireless access point	**Knowledge:** • Explain the different between text and images • Know that text and images can communicate messages clearly • Explain the advantages and disadvantages of using text and images • Explain that text can be changed to communicate more clearly • Define what page orientation means • Explain what placeholders are and why they are important **Skills:** • Change font style, size and colours for a given purpose • Edit text on a word processor • Create a template for a magazine cover • Find the best location for my content on a page • Paste text and images to create a magazine cover • Make changes to content once I've added it • Identify different layouts and math them to their purpose • Choose a suitable layout for a given purpose **Key Vocab:** Text, images, advantages, disadvantages, communicate, font, font style, communicate, template, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits	• Know what the objects in a Scratch project are • Explain that objects in Scratch have attributes • Know that commands in Scratch are represented as blocks • Know that each sprite is controlled by commands I choose • Explain that the objects in my project will respond exactly to the code • Explain what a sequence is • Name the objects I will need for a project • Explain how a task description is related to a design • **Skills:** • Choose a word which describes an on-screen action for my design • Create my own program following a design • Start a program in different ways • Create a sequence of connected commands • Combine sound commands • Order notes in a sequence • Build a sequence of commands • Choose the actions for each sprite in a program • Make design choices for my artwork • Implement my algorithm as a code **Key Vocab:** scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, programming blocks, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, note, chord, costume, backdrop, algorithm, bug, debug
Yr 3	**Stop-frame Animation -** **Overview**: Capturing and editing digital still images to produce a stop-frame animation that tells a story. **Knowledge:** • Explain how an animation/flipbook works	**Branching databases** **Overview:** Building and using branching databases to group objects using yes/no questions.	**Events and actions in programs -** **Overview:** Writing algorithms and programs that use a range of events to trigger sequences of actions. **Knowledge:**

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	• Explain why little changes are needed for each frame • Describe an animation that is achievable on screen • Explain ways to make my animation better • Explain why I added other media to my animation **Skills:** • Draw a sequence of pictures • Create an effective flip book-style animation • Predict what an animation will look like • Create an effective stop-frame animation • Break a story down into settings, characters and events • Create a storyboard • Use onion-skinning to help me make small changes between frames • Review a sequence of frames to check my work • Improve my animation based on feedback • Add other media to my animation • Evaluate my final film • Evaluate another learner's animation • Evaluate the quality of my animation **Key Vocab:** digital device, input, output, process, program, connection, network, network switch, wireless access point	**Knowledge:** • Know what a yes/no question is • Explain what a database is • Explain why my branching database works • Explain that questions need to be ordered carefully • Explain the difference between different branching database structures • Explain what my branching database tells me **Skills:** • Make up a yes/no question about a group of objects • Create two groups of objects separated by one attribute • Select an appropriate attribute separate objects into groups • Create a group of objects within an existing group • Select objects to include in a branching database • Group objects using my own yes/no questions • Prove that my branching database works • Create yes/no questions using given attributes • Select a theme and choose a suitable variety of objects • Create questions and apply them to a branching tree structure • Use my database to answer questions • Compare two ways of presenting information **Key Vocab:** attribute, value, questions, table, object, branching database, database, equal, even, separate, structure, compare, order, organise, j2data, selecting, information, decision tree, questions	• Explain the relationship between an event and an action • Explain my choices • Explain a way to improve a program • Explain how the real world influenced my choices • Know additional programming features from a set of programming blocks • Justify my design choices • Know how to evaluate my project **Skills:** • Know which keys to use for actions • Choose a character for my project • Choose a suitable size for a character in a maze • Program movement • Use a programming extension • Program blocks to set up my program • Choose suitable keys to turn on additional features • Build more sequences of commands to make my design work • Test a program against a given design • Match a piece of code to an outcome • modify a program using a design • Implement my design **Key Vocab:** Motion, event, sprite, algorithm, logic, move, resize, algorithm, extension block, pen up, set up, pen, design, event, action, algorithm, debugging, errors, design, code, test, actions, events
Yr 4	**The Internet -** **Overview:** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content. **Knowledge:** • Explain that the internet is a network of networks	**Photo Editing -** **Overview:** Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled. **Knowledge:** • Know changes that can be made to an image • Explain how images can be changed in real life	**Repetition in Shapes -** **Overview:** Using a text-based programming language to explore count-controlled loops when drawing shapes. **Knowledge:** • Explain the effect of changing a value of a command

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	• Explain how information is shared across the internet • Know why a network needs protecting • Explain how different network devices are connected • Explain how the internet allows us to view the World Wide Web • Know that the World Wide Web is part of the internet and that it contains websites and webpages • Explain the types of media shared on the World Wide Web • Know where websites are when uploaded to the World Wide Web • Know that anyone can add content to the World Wide Web • Explain that new content can be created online • Explain that websites and their content are created by people • Know who may own the content of websites • Explain that there are rules to protect the internet • Know that not everything on the World Wide Web is true • Explain that some information online may not be honest, accurate or legal • Explain why I need to think carefully before I share or reshare content. **Skills:** • Access websites on the World Wide Web • Create media which can be found on websites **Key Vocab:** Internet, network, router, network security, network switch, website, web page, web address, routing, route tracer, browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, adverts	• Explain the effect that editing can have on an image • Explain what has changed in an image • Know why someone might want to change the composition of an image • Explain the changes that have been made to an image • Explain how an image has been retouched • Know examples of positive and negative effects that retouching can have on an image • Explain why some images are 'real' and some are 'fake' • Talk about fake images which may be around me • Know the effect of adding other elements to my work • Explain how the completed publication differs to the original image **Skills:** • Change the composition of an image by selecting parts of it • Choose effects to make my image fit a scenario • Choose appropriate tools to retouch an image • Combine parts of images to create new images • Evaluate the impact of my publication on others through feedback **Key Vocab:** image, edit, arrange, select, digital, crop, undo, save, search, copyright, composition, pixels, rotate, flip, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, vignette, retouch, clone, recolour, magic wand, select, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font style, shapes, border, layer	• Know the effect of changing the number of times a task is repeated • Explain the outcome of a program containing a count-controlled loop • Explain that a computer can repeatedly call a procedure **Skills:** • Program a computer typing commands • Create a code snippet for a given purpose • Use a template to draw what I want my program to do • Write an algorithm to produce a given outcome • Test my algorithm in a text-based language • Identify repetition in everyday tasks • Identify patterns in a sequence • Use a count-controlled loop to produce a given outcome • Choose which values to change in a loop • Identify 'chunks' of actions in the real world • Use a procedure in a program • Design a program that includes count-controlled loops • Make use of my design to write a program • Develop my programming by debugging it **Key Vocab** program, commands, code snippet, algorithm, design, debug, logo commands, pattern, repeat, repetition, count-controlled, loop, value, count-controlled loop, trace, value, decompose, procedure
Yr 4	**Audio editing -** **Overview:** Capturing and editing audio to produce a podcast, ensuring that copyright is considered. **Knowledge:** • Know which digital devices record sound and play it back • Know the inputs and outputs required to play audio or record sound	**Data Logging -** **Overview:** Recognising how and why data is collected over time, before using data loggers to carry out an investigation. **Knowledge:** • Know questions that can be answered using a given data set	**Repetition in games -** **Overview:** Using a block-based programming language to explore count-controlled and infinite loops when creating a game. **Knowledge:** • Know when to modify loops to produce a given outcome

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	• Know that the range of sounds that can be recorder • Explain how I could improve a recording • Discuss what other people include when recording sound for a podcast • Explain why it is useful to save digital recordings • Know the sounds that people combine together • Explain that digital recordings need to be exported to share them • Explain the features of a digital recording that I like • **Skills:** • Use a device to record audio and playback sound • Write the content for a podcast • Save a digital recording as a file • Open a digital recording from a file • Edit sections of an audio recording • Choose suitable sounds to include in a podcast • Use editing tools to arrange sections of audio • Make improvements to a digital recording **Key Vocab:** audio, record, playback, microphone, speaker, headphones, input, output, start, pause, stop, podcast, save, file, edit, selection, open, mixing, time shift, export, MP3, editing, evaluate, feedback	• Know data that can be gathered over time • Explain that sensors are input devices • Know that data from sensors can be recorded • Know a suitable place to collect data • Know the intervals used to collect data • Explain the data that I have captured • Know how to Interpret data that has been collected using a data logger • Know how to draw conclusions from collected data • Explain the benefits of using a datalogger **Skills:** • Choose a data set to answer a given question • Use data from a sensor to answer a given question • Import a data set • Use a computer to view data in different ways • Use a computer program to sort data • Use logged data to answer questions • Plan how to collect data using a datalogger • Use a data logger to collect data **Key Vocab:** data, table, layout, input device, sensor, data logger, logging, data point, interval, analyse, import, export, logged, collection, analyse, review, conclusion	• Know when to use a count-controlled and an infinite loop • Know that some programming languages enable enable more than one process to be run at once • Know which action will be repeated for each object • Explain what the outcome of the repeated action should be • Know which parts of a loop can be changed • Explain the effect of changes I have made • Explain what my project will do **Skills:** • List an everyday task as a set of instructions including repetition • Predict the outcome of a snippet of code • Modify a snippet of code to create a given outcome • Modify loops to produce a given outcome • Evaluate the effectiveness of the repeated sequences used in a program • re-use existing code snippets on new sprites • Evaluate the use of repetition in a project • Select key parts of a given project to use in my own design • Develop my own design • Refine the algorithm in my design • Build a program that follows my design • Evaluate the steps I followed when building my project **Key Vocab:** scratch, programming, sprite, blocks, code, loop, repeat, value, forever, infinite loop, count-controlled loop, costume, repetition, animate, costume, event, duplicate, modify, design, algorithm, refine, evaluate
Yr 5	**Sharing information -** **Overview:** Identifying and exploring how information is shared between digital systems. **Knowledge:** • Explain that systems are built using a number of parts • Know that a computer system features inputs, processes and outputs • Explain that computer systems communicate with other devices	**Video Editing -** **Overview:** Planning, capturing, and editing video to produce a short film. **Knowledge:** • Explain that a video can include both visual and audio media • Explain the benefits of adding audio to a video	**Selection in Physical Computing -** **Overview:** Exploring conditions and selection using a programmable microcontroller. **Knowledge:** • Explain what an infinite loop is • Know which output devices are controlled with a count-controlled loop

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	• Know that tasks can be managed by computer systems • Explain that some computer systems have a human element • Explain the benefits of a given computer system • Know that data is transferred using agreed methods • Explain that networked digital devices have unique addresses • Explain that data is transferred over networks in packets • Know that connected digital devices can allow us to access shared files stored online • Explain that the internet allows different media to be shared • Know strategies to ensure successful group work • Know the difference between working online and working offline • Know the different ways of working online • Know that working together over the internet can be public or private • Explain how the internet enables effective collaboration **Skills:** • Send information over the internet in different ways • Make thoughtful suggestions on a group's work **Key Vocab:** system, connection, digital, input, process, output, connection, protocol, address, packets, chat, explore, slide deck, chat, explore, reuse, remix, collaboration	• Know and name digital devices that can record video and sound • Know suitable methods of using a digital device to capture a video • Know how to handle devices safely • Know some of the features of an effective video • Explain why lightning and angle are important in creating an effective video • Explain how to improve a video by reshooting and editing **Skills:** • Plan a video project using a storyboard • Choose the most suitable digital device for recording a project • Locate and identify the working features of a digital device the can record video • Select a suitable device and software to capture a video • Record a video that demonstrates some of the features of an effective video • Store, retrieve and export a recording to a computer • Know that choices when making a video will impact on the quality of the final outcome • Evaluate a video and share my opinions • Select the correct tools to make edits to a video • Make edits to a video and improve the final outcome **Key Vocab:** video, audio, recording, storyboard, script, soundtrack, dialogue, recording, capture, zoom, storage, digital, tape, AV, save, videographer, pan, tilt, angle, lightning, setting, Youtuber, content, light, audio, sound, camera angle, colour, export, computer, Microsoft Movie Maker, split, trim/clip, edit, titles, end credits, timeline, transitions, soundtrack, content, retake/reshoot, special effects, title screen, constructive feedback	• Explain that a condition is something that can be either true or false • Explain that a condition being met can start an action • Know which conditions start an action • Explain what my project will do **Skills:** • Build a simple circuit to connect a microcontroller to a computer • Program a microcontroller to light an LED • Connect more than one output device to a microcontroller • Design sequences for given output devices • Connect more than one output device to a microcontroller • Experiment with a 'do until' loop • program a microcontroller to respond to an input • Identify a condition and an action in my project • Use selection to direct the flow of a program • Create a detailed drawing of my project • Write an algorithm to control lights and a motor • Use selection to produce an intended outcome • Test and debug my project **Key Vocab:** microcontroller, crumble controller, components, LED, Sparkle, crocodile clips, connect, battery box, program, repetition, infinite loop, output, devices, motor, counter-controlled loop, condition, true, false, input, output devices, selection, condition, action, task, design, switch, battery box, algorithm, program, debug, evaluate
Yr 5	**Vector Drawing** **Overview:** Creating images in a drawing program by using layers and groups of objects. **Knowledge:** • Know that vector drawings are made using shapes • Know the main drawing tools	**Flat-file Databases** **Overview:** Using a database to order data and create charts to answer questions. **Knowledge:** • Explain how information can be recorded • Explain what a 'field' and a 'record' database	**Selection in Quizzes** **Overview:** Exploring selection in programming to design and code an interactive quiz. **Knowledge:** • Know how conditions are used in selection • Know the conditions in a program

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	• Explain how a vector drawing is different from paper-based drawings • Know the shapes used to make a vector drawing • Explain that each element added to a vector drawing is an object • Explain how alignment grids and resize handles can be used to improve consistency • Know that each added object creates a new layer in a drawing • Know which objects are in the front layer or in the back layer of a drawing • Know how to make improvements to a vector drawing **Skills:** • Move, resize, and rotate objects that have been duplicated • Use the zoom tool to help add detail to drawings • Modify objects to create different effects • Change the order of layers in a vector drawing • Copy part of a drawing by duplicating several objects • Group to create a single object • Reuse a group of objects to further develop a vector drawing • Create alternatives to vector drawings • Apply what I have learnt about vector drawing to other multimedia **Key Vocab:** vector, drawing tools, shapes, objects, icons, toolbar, move, resize, colour, rotate, duplicate/copy, layers, front, back, order, copy, paste, group, ungroup, object, vector drawing, reuse, improvement, evaluate, alternatives	• Explain how information can be grouped • Explain the benefits of using a computer to create graphs **Skills:** • Create multiple questions about the same field • Order, sort and group my data cards • Navigate a flat-file database to compare different views of information • Choose which field to sort data by answering a given question • Group information to answer questions • Combine grouping and sorting to answer specific questions • Choose which field and value are required to answer a question • Outline how 'AND' and 'OR' can be used to refine data selection • Choose multiple criteria to answer a given question • Select an appropriate chart to visually compare data • Refine a chart by selecting a particular filter • Ask questions that will need more than one field to answer • Refine a search in a real-world context • Present my findings to a group **Key Vocab:** database, data, information, record, field, sort, order, group, search, criteria, graph, chart, axis, compare, filter, presentation	• Know the condition and outcomes in an 'if… then… else…' statement • Explain that program flow can branch according to a condition • Know that a condition can direct program flow in of of two ways • Know the outcome of user input in an algorithm • Know ways that a program could be improved • Know the setup code needed in a given program **Skills:** • Modify a condition in a program • Use selection in an infinite loop to check a condition • Create a program with different outcomes using selection • Design the flow of a program which contains 'if… then… else…' • Outline a given task • Use a design format to outline a project • implement an algorithm to create the first section of a program • Test a program • Share a program with others • Extend a program further **Key Vocab:** selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, selection, outcome, test, run, setup, share, evaluate, constructive
Yr 6	**Internet Communication** **Overview:** Recognising how the WWW can be used to communicate and be searched to find information. **Knowledge:** • Explain why we need tools to find something online	**Web Page Creation** **Overview:** Designing and creating web pages, giving consideration to copyright, aesthetics, and navigation. **Knowledge:** • Know the different types of media used on websites	**Variables in games -** **Overview:** Exploring variables when designing and coding a game. **Knowledge:** • Know examples of information that is variable • Explain that the way that a variable changes can be defined

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	• Know the role of web crawlers in creating an index • Explain that search results are ordered • Explain that a search engine follows rules to rank relevant pages • Know some of the criteria that a search engine checks to decide on the order of results • Know some of the ways that search results can be influenced • Know some of the limitations of search engines • Explain how search engines make money • Explain the different ways in which people communicate • Know that there are a variety of ways of communicating over the internet • Know different methods of communicating over the internet • Know when to share and when not to share • Explain that communication on the internet may not be private **Skills:** • Complete a web search to find specific information • Refine a search • Compare results from different search engines • Relate a search term to the search engine's index • Choose methods of communications to suit a particular purpose **Key Vocab:** search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine, index, crawler, bot, search engine, ranking, search engine optimisation, links, web crawlers, searching, content creator, selection, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, Youtube, Twitter, BBC Newsround	• Know that websites are written in HTML • Know the common features of a webpage • Know media to include on a web page • Explain why I should use copyright-free images • Know what is meant by the term 'fair use' • Explain what a navigation path is • Know why navigation paths are useful • Explain the implications of linking to content owned by others **Skills:** • Explore a website • Draw a web page layout that suits a given purpose • Find copyright free images • Add content to a own web page • Preview what a web page looks like • Evaluate what a web page looks like on different devices and suggest/make edits • Make multiple web pages and link them using hyperlinks • Create hyperlinks to link to other people's work • Evaluate the user experience of a website **Key Vocab:** website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, implication, external link, embed	• Know that variables can hold numbers or letters • Know a program variable as a placeholder in memory for a single value • Explain that a variable has a name and a value • Know that the value of a variable can be changed • Know where in a program to change a variable • Know that the value of a variable can be used by a program • Explain my design choices • Know ways that my game could be improved **Skills:** • Make use of an event in a program to set a variable • Choose the artwork for a project • Create algorithms for a project • Create the artwork for a project • Choose a name that identifies the role of a variable • Test a code that I have written • Extend a game further by using more variables • Share a game with others **Key Vocab:** variable, change, name, value, set, change, design, event, code, task, algorithm, artwork, program, project, code, test, debug, improve, evaluate, share
Yr 6	**3D modelling -** **Overview:** Planning, developing, and evaluating 3D computer models of physical objects. **Knowledge:** • Know the similarities and differences between 2D and 3D shapes	**Introduction to Spreadsheets** **Overview:** Answering questions by using spreadsheets to organise and calculate data. **Knowledge:** • Explain the relevance of data headings • Explain what an item of data is • Explain the relevance of a cell's data type	**Sensing** **Overview:** Designing and coding a project that captures inputs from a physical device. **Knowledge:** • Explain that if you read a variable, the value remains

	• Explain why we might represent 3D objects on a computer • Know how graphical objects can be modified • Know the 3D shapes needed to create a model of a given real-world object • Know how my model can be improved **Skills:** • Select, move and delete a digital 3D shape • Resize a 3D object • Change the colour of a 3D object • Rotate a 3D object • Position 3D objects in relation to each other • Select and duplicate multiple 3D objects • Create digital 3D objects of an appropriate size • Group a digital 3D shape and a placeholder to create a hole in an object • Plan a 3D model • Choose suitable 3D objects to construct a model • Modify multiple 3D objects • Modify a model to improve it • Evaluate a model against a given criterion **Key Vocab:** 2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, design, modify, evaluate, improve	• Know that changing inputs changes outputs • Know that data can be calculated using different operations • Explain why data should be organised • Know when to use a table or graph **Skills:** • Answer questions from an existing data set • Ask simple relevant questions which can be answered using data • Apply an appropriate number format to a cell • Build a data set in a spreadsheet application • Construct a formula in a spreadsheet • Create a formula which includes a range of cells • Apply a formula to multiple cells by duplicating it • Use a spreadsheet to answer questions • Apply a formula to calculate the data needed to answer questions • Produce a graph • Use a graph to show the answer to questions **Key Vocab:** spreadsheet, data, data heading, data set, cells, columns, rows, data item, object, spreadsheet, application, format, common attribute, formula, calculation, input, output, cell reference, operation, range, duplicate, sigma, propose, question, organised, graph, chart, evaluate, comparison, questions, software, tools	• Explain the importance of the order of conditions in else, if statements • Know what variables to include in a project **Skills:** • Use my understanding of programming to a new environment • Test a program on an emulator • Transfer a program to a controllable device • Find examples of conditions in the real world • Use a variable in an: if, then, else statement to select the flow of a program • Determine the flow of a program using selection • Use a condition to change a variable • Experiment with different physical inputs • Modify a program to achieve a different outcome • Design the algorithm for a project • Design the program flow for a project • Create a program based on a design • Test a program against a design • Use a range of approaches to find and fix bugs **Key Vocab:** Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if then else, variable, random, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug