Primary Phase Progression Map: Computing

	EYFS	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
INFORMATION TECHNOLOGY							
	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	**Use technology purposefully to create, organise, store, manipulate and retrieve digital content.**		Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.			
Word Processing	*Content under development*	**Digital Writing:** Identify and find keys on a keyboard Use letter, number, and space keys Open a word processor Use backspace to remove text Identify the toolbar and use bold, italic, and underline Type capital letters (using caps locks) Change the font style Select all of the text by clicking and dragging Select a word by double-clicking Use 'undo' to remove changes	Use the space bar only once between words Type capital letters (using the shift key)	**Desktop Publishing:** Edit text by changing font style, size, and colours for a given purpose Change the text to communicate something more clearly Create a template for a particular purpose Define the term 'page orientation' Recognise placeholders and say why they are important Choose the best locations for my content Make changes to content after I've added it Copy and paste images Choose a suitable layout for a given purpose Identify different layouts Match a layout to a purpose	Use cut, copy, paste and delete to quickly duplicate and organise text Combine digital images from different sources, objects and text to make a final piece Choose font sizes appropriate for audience and purpose.	Apply useful affects to my documents such as hyperlinks and sound Organise and reorganise text on a screen to suit a purpose	Choose the best application to demonstrate my learning Format text to suit a purpose Discuss the audience and purpose of my content

Data Handling		Grouping Data:	Pictograms:	Branching databases:	Data Logging:	Flat-file databases:	Spreadsheets:
				Identify the uses of desktop publishing in the real world			
	Identify a chart	Describe objects using labels	Compare totals in a tally chart	Create two groups of objects separated by one attribute	Choose a data set to answer a given question	Create multiple questions about the same field	Answer questions from an existing data set
	Sort physical objects.	Identify the label for a group of objects	Record data in a tally chart	Investigate questions with yes/no answers	Identify data that can be gathered over time	Explain how information can be recorded	Ask simple relevant questions which can be answered using data
	Take a picture and discuss what I have done	Match objects to groups	Represent a tally count as a total	Make up a yes/no question about a collection of objects	Suggest questions that can be answered using a given data set	Order, sort, and group my data cards	Explain the relevance of data headings
	Present simple data on a digital device.	Count the number of objects in a group	Enter data onto a computer	Arrange objects into a tree structure	Explain that sensors are input devices	Choose which field to sort data by to answer a given question	Apply an appropriate number format to a cell
		Group objects	Use a computer to view data in a different format	Create a group of objects within an existing group	Identify that data from sensors can be recorded	Explain what a 'field' and a 'record' is in a database	Build a data set in a spreadsheet application
		Describe an object	Use pictograms to answer simple questions about objects	Select an attribute to separate objects into groups	Use data from a sensor to answer a given question	Navigate a flat-file database to compare different views of information	Construct a formula in a spreadsheet
		Describe a property of an object	Explain what the pictogram shows	Group objects using my own yes/no questions	Identify a suitable place to collect data	Combine grouping and sorting to answer more specific questions	Explain the relevance of a cell's data type
		Find objects with similar properties	Organise data in a tally chart	Prove my branching database works	Identify the intervals used to collect data	Choose multiple criteria to answer a given question	Identify that changing inputs changes outputs
		Count how many objects share a property	Use a tally chart to create a pictogram	Select objects to arrange in a branching database	Talk about the data that I have captured	Choose which field and value are required to answer a given question	Apply a formula to multiple cells by duplicating it
		Group objects in more than one way	Answer 'more than'/'less than' and 'most/least' questions about an attribute	Compare two branching database structures	Import a data set	Outline how 'AND' and 'OR' can be used to refine data selection	Create a formula which includes a range of cells
		Group similar objects	Create a pictogram to arrange objects by an attribute	Create yes/no questions using given attributes	Use a computer program to sort data	Explain the benefits of using a computer to create graphs	Recognise that data can be calculated using different operations
		Choose how to group objects	Tally objects using a common attribute	Explain that questions need to be ordered carefully to split objects into similarly sized groups	Use a computer to view data in different ways	Refine a chart by selecting a particular filter	Apply a formula to calculate the data I need to answer questions
		Describe groups of objects	Choose a suitable attribute to compare	Create questions and apply them to a tree structure	Plan how to collect data using a data logger	Select an appropriate chart to visually compare data	Explain why data should be organised
		Record how many objects are in a group	Collect the data I need		Propose a question that can be answered using logged data		Suggest when to use a table or graph
		Compare groups of objects			Use a data logger to collect data		
		Decide how to group objects to answer a question					
		Record and share what I have found					

			Create a pictogram and draw conclusions from it	Select a theme and choose a variety of objects	Draw conclusions from the data that I have collected	Ask questions that will need more than one field to answer	Use a graph to show the answer to questions
			Share what I have found out using a computer	Use my branching database to answer questions and explain what it tells me	Explain the benefits of using a data logger	Present my findings to a group	
			Use a computer program to present information in different ways	Compare two ways of presenting information: Pictogram and a database	Interpret data that has been collected using a data logger	Refine a search in a real-world context	
Web Design							**Web page creation:** Explore and discuss the different types of media used on websites
							Know that websites are written in HTML
							Draw a web page layout that suits my purpose
							Recognise the common features of a web page
							Suggest media to include on my page
							Describe what is meant by the term 'fair use'
							Add content to my own web page
							Evaluate what my web page looks like on different devices and suggest/make edits
							Preview what my web page looks like
							Describe why navigation paths are useful
							Explain what a navigation path is

							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
Animation		**Computational Thinking, Coding and Programming:** An introduction to Animation		**Stop-Frame Animation:** Explain how an animation/flip book works Create an effective flip book animation by drawing a sequence of pictures Create an effective stop-frame animation Explain why little changes are needed for each frame Predict what an animation will look like Break down a story into settings, characters and events Create a storyboard Describe an animation that is achievable on screen Evaluate the quality of my animation Review a sequence of frames to check my work Use onion skinning to help me make small changes between frames Evaluate another learner's animation			

				Explain ways to make my animation better Improve my animation based on feedback Add other media to my animation and explain my choices Evaluate my final film			
Video Creating						**Video Production:** Explain that video is a visual media format Identify and compare features of videos Experiment with different camera angles Identify and find features on a digital video recording device Make use of a microphone Capture video using a range of filming techniques Review how effective my video is Suggest filming techniques for a given purpose Create and save video content Outline the scenes of my own video and decide which filming techniques to use Explain how to improve a video by reshooting and editing and use this knowledge to make edits to my won	

					Select the correct tools to make edits to my video Store, retrieve, and export my recording to a computer Evaluate my video and share my opinions	
Photography and Digital Art		**Digital Painting:** Draw lines on a screen and explain which tools I used Make marks on a screen with the square and line tools and explain which tools I used Use the shape and line tools appropriately and effectively Choose appropriate paint tools and colours Say which tools were helpful and why Know that different paint tools do different jobs Change the colour and brush sizes Make dots of colour on the page Explain that pictures can be made in lots of different ways Spot the differences between painting on a computer and on paper	**Digital Photography:** Explain what I did to capture a digital photo Recognise what devices can be used to take photographs 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 Identify what is wrong with a photograph Improve a photograph by retaking it Experiment with different light sources and explore the effect that light has on a photo. Explain why a picture may be unclear Know that images can be changed and Identify which photos are real and which have been changed		**Photo editing:** Explain the effect that editing can have on an image Explore how images can be changed in real life Identify changes that we can make to an image Change the composition of an image by selecting parts of it Consider why someone might want to change the composition of an image Explain what has changed in an edited image Choose effects to make my image fit a scenario Explain why my choices fit a scenario Choose appropriate tools to retouch an image Give examples of positive and negative effects that retouching can have on an image Identify how an image has been retouched	**Vector Graphics:** Discuss how a vector drawing is different from paper-based drawings Identify the main drawing tools Recognise that vector drawings are made using shapes Explain that each element added to a vector drawing is an object Identify the shapes used to make a vector drawing Move, resize, and rotate objects I have duplicated Explain how alignment grids and resize handles can be used to improve consistency Modify objects to create different effects Use the zoom tool to help me add detail to my drawings Change the order of layers in a vector drawing	**3D Modelling:** Discuss the similarities and differences between 2D and 3D shapes Explain why we might represent 3D objects on a computer Select, move, and delete a digital 3D shape Change the colour of a 3D object Identify how graphical objects can be modified Resize a 3D object Position 3D objects in relation to each other Rotate a 3D object 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 Identify the 3D shapes needed to create a model of a real-world object

			Use a tool to achieve a desired effect		Combine parts of images to create new images Sort images into 'fake' or 'real' and explain my choices Talk about fake images around me Compare the original image with my completed publication Consider the effect of adding other elements to my work Evaluate the impact of my publication on others through feedback	Identify that each added object creates a new layer in the drawing Identify which objects are in the front layer or in the back layer of a drawing Copy part of a drawing by duplicating several objects Group to create a single object Reuse a group of objects to further develop my vector drawing Apply what I have learned about vector drawings Suggest improvements to a vector drawing Create alternatives to vector drawings	Choose which 3D objects I need to construct my model Modify multiple 3D objects Plan my 3D model Decide how my model can be improved Evaluate my model against a given criterion Modify my model to improve it
Sound			**Digital Music:** Describe how music makes me feel, e.g. happy or sad Identify simple differences in pieces of music Listen with concentration to a range of music Create a rhythm pattern Explain that music is created and played by humans Play an instrument following a rhythm pattern Identify that music is a sequence of notes	**Computational Thinking, Coding and Programming:** Sequencing Sounds	**Audio Production:** Identify digital devices that can record sound and play it back Identify the inputs and outputs required to play audio or record sound Recognise the range of sounds that can be recorded Discuss what other people include when recording sound for a podcast Use a device to record audio and play back sound Plan and write the content for a podcast and choose suitable sounds to include		

			Use a computer to create a musical pattern using three notes Refine my musical pattern on a computer I can describe an animal using sounds, explaining my choices Explain how I made my work better		Save and open a digital recording as a file and explain why this is useful Discuss ways in which audio recordings can be altered and edit sections of an audio recording Discuss sounds that other people combine and discuss the features that I like Use editing tools to arrange sections of audio and make improvements Know that digital recordings need to be exported to share them		
COMPUTER SCIENCE							
	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes	**Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions** **Create and debug simple programs** **Use logical reasoning to predict the behaviours of simple programs**		Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content			
Computational Thinking, Coding and Programming	*Content under development*	**Moving a Robot:** Match a command to an outcome Predict the outcome of a command on a device Run a command on a device Follow an instruction	**Robot Algorithms:** Choose a series of words that can be enacted as a sequence Follow instructions given by someone else Give clear and unambiguous instructions	**Sequencing Sounds:** Explain that objects in Scratch have attributes Identify the objects in a Scratch project (sprites, backdrops) Recognise that commands in Scratch are represented as blocks	**Repetition in Shapes:** Create a code snippet for a given purpose Explain the effect of changing a value of a command Program a computer by typing commands	**Selection in Physical Computing:** Create a simple circuit and connect it to a microcontroller Explain what an infinite loop does Program a microcontroller to make an LED switch on	**Variables in Games:** Explain that the way that a variable changes can be defined Identify examples of information that is variable Identify that variables can hold numbers or letters

		Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
		Give directions	Create different algorithms for a range of sequences (using the same commands)	Choose a word which describes an on-screen action for my plan	Test my algorithm in a text-based language	Connect more than one output component to a microcontroller	Explain that a variable has a name and a value
		Recall words that can be acted out		Create a program following a design	Use a template to create a design for my program	Design sequences that use count-controlled loops	Identify a program variable as a placeholder in memory for a single value
		Compare forwards and backwards movements	Show the difference in outcomes between two sequences that consist of the same commands	Identify that each sprite is controlled by the commands I choose	Write an algorithm to produce a given outcome	Use a count-controlled loop to control outputs	Recognise that the value of a variable can be changed
		Predict the outcome of a sequence involving forwards and backwards commands	Use an algorithm to program a sequence on a floor robot	Create a sequence of connected commands	Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves	Design a conditional loop	Decide where in a program to change a variable
		Start a sequence from the same place	Compare my prediction to the program outcome	Explain that the objects in my project will respond exactly to the code	Identify patterns in a sequence	Explain that a condition is either true or	Make use of an event in a program to set a variable
		Compare left and right turns	Follow a sequence	Start a program in different ways	Use a count-controlled loop to produce a given outcome	Program a microcontroller to respond to an input	Recognise that the value of a variable can be used by a program
		Experiment with turn and move commands to move a robot	Predict the outcome of a sequence	Combine sound commands	Choose which values to change in a loop	Explain that a condition being met can start an action	Create algorithms for my project
		Predict the outcome of a sequence involving up to four commands	Explain the choices I made for my mat design	Explain what a sequence is	Identify the effect of changing the number of times a task is repeated	Identify a condition and an action in my project	Explain my design choices
		Choose the order of commands in a sequence	Identify different routes around my mat	Order notes into a sequence	Predict the outcome of a program containing a count-controlled loop	Use selection (an 'if…then…' statement) to direct the flow of a program	Choose a name that identifies the role of a variable
		Debug my program	Test my mat to make sure that it is usable	Build a sequence of commands	Explain that a computer can repeatedly call a procedure	Create a detailed drawing of my project	Create the artwork for my project
		Explain what my program should do	Create an algorithm to meet my goal	Decide the actions for each sprite in a program	Identify 'chunks' of actions in the real world	Describe what my project will do	Test the code that I have written
		Identify several possible solutions	Explain what my algorithm should achieve	Identify and name the objects I will need for a project	Use a procedure in a program	Identify a real-world example of a condition starting an action	Extend my game further using more variables
		Plan two programs	Use my algorithm to create a program	Implement my algorithm as code	Identify 'chunks' of actions in the real world	Test and debug my project	Identify ways that my game could be improved
		Use two different programs to get to the same place	Plan algorithms for different parts of a task	Relate a task description to a design	Design a program that includes count-controlled loops	Use selection to produce an intended outcome	
			Put together the different parts of my program		Develop my program by debugging it	Write an algorithm that describes what my model will do	
			Test and debug each part of the program				

		Animation:	Quizzes:	Events and Actions:	Repetition in Games	Selection in Quizzes:	Sensing Movement:
	Content under development				Make use of my design to write a program		

Animation:	Quizzes:	Events and Actions:	Repetition in Games	Selection in Quizzes:	Sensing Movement:
Compare different programming tools	Identify that a program needs to be started	Choose which keys to use for actions and explain my choices	List an everyday task as a set of instructions including repetition	Identify conditions in a program	Apply my knowledge of programming to a new environment
Find which commands to move a sprite	Identify the start of a sequence	Explain the relationship between an event and an action	Modify a snippet of code to create a given outcome	Modify a condition in a program	Test my program on an emulator
Use commands to move a sprite	Show how to run my program	Identify a way to improve a program	Predict the outcome of a snippet of code	Recall how conditions are used in selection	Transfer my program to a controllable device
Run my program	Change the outcome of a sequence of commands	Choose a character for my project	Choose when to use a count-controlled and an infinite loop	Create a program with different outcomes using selection	Determine the flow of a program using selection
Use a Start block in a program	Match two sequences with the same outcome	Choose a suitable size for a character in a maze	Modify loops to produce a given outcome	Identify the condition and outcomes in an 'if... then... else...' statement	Identify examples of conditions in the real world
Use more than one block by joining them together	Predict the outcome of a sequence of commands	Program movement	Recognise that some programming languages enable more than one process to be run at once	Use selection in an infinite loop to check a condition	Use a variable in an if, then, else statement to select the flow of a program
Find blocks that have numbers	Build the sequences of blocks I need	Choose blocks to set up my program	Choose which action will be repeated for each object	Design the flow of a program which contains 'if... then... else...'	Experiment with different physical inputs
Say what happens when I change a value	Decide which blocks to use to meet the design	Consider the real world when making design choices	Evaluate the effectiveness of the repeated sequences used in my program	Explain that program flow can branch according to a condition	Explain that if you read a variable, the value remains
Add blocks to each of my sprites	Work out the actions of a sprite in an algorithm	Use a programming extension	Explain what the outcome of the repeated action should be	Show that a condition can direct program flow in one of two ways	Use a condition to change a variable
Delete a sprite	Choose backgrounds for the design	Build more sequences of commands to make my design work	Explain the effect of my changes	Identify the outcome of user input in an algorithm	Explain the importance of the order of conditions in else, if statements
Show that a project can include more than one sprite	Choose characters for the design	Choose suitable keys to turn on additional features	Identify which parts of a loop can be changes	Outline a given task	Modify a program to achieve a different outcome
Choose appropriate artwork for my project	Create a program based on the new design	Identify additional features (from a given set of blocks)	Re-use existing code snippets on new sprites	Use a design format to outline my project	Use an operand (e.g. <>=) in an if, then statement
Create an algorithm for each sprite	Build sequences of blocks to match my design	Match a piece of code to an outcome	Develop my own design explaining what my project will do	Implement my algorithm to create the first section of my program	Decide what variables to include in a project
Decide how each sprite will move	Choose the images for my own design	Modify a program using a design			
Add programming blocks based on my algorithm	Create an algorithm				
	Compare my project to my design				

		Test the programs I have created Use sprites that match my design	Debug my program Improve my project by adding features	Test a program against a given design Evaluate my project Implement my design Make design choices and justify them	Evaluate the use of repetition in a project Select key parts of a given project to use in my own design Build a program that follows my design Evaluate the steps I followed when building my project Refine the algorithm in my design	Share my program with others Test my program Extend my program further Identify the setup code I need in my program Identify ways the program could be improved	Design the algorithm for my project Design the program flow for my project Create a program based on my design Test my program against my design Use a range of approaches to find and fix bugs
Computer Networks	*Content under development*	**Technology Around Us** Explain technology as something that helps us Locate examples of technology in the classroom and explain how they help us Name the main parts of a computer Switch on and log into a computer Use a mouse to click and drag Click and drag to make objects on a screen Use a mouse to create a picture Use a mouse to open a program Save and open my work to/from a file Say what a keyboard is for	**IT Around Us:** Describe some uses of computers Identify examples of computers and identify that a computer is a part of IT Identify different examples of IT and know that some IT can be used in more than one way Sort IT by what it is used for Sort IT by where it is found Find examples of information technology and talk about their uses Demonstrate how IT devices work together Recognise common types of technology List different uses of information technology	**Connecting Computers:** Know that digital devices accept inputs Know that digital devices produce outputs Follow and describe a simple process Classify input and output devices Explain how I use digital devices for different activities Recognise similarities between using digital devices and non-digital tools Suggest differences between using digital devices and non-digital tools Discuss why we need a network switch	**The internet:** Know and demonstrate how information is shared across the internet Describe the internet as a network of networks Discuss why a network needs protecting Describe networked devices and how they connect Explain that the internet is used to provide many services Recognise that the World Wide Web contains websites and web pages Explain how to access websites on the WWW Describe where websites are stored when uploaded to the WWW	**Systems and Searching:** Describe that a computer system features inputs, processes, and outputs Know that computer systems communicate with other devices Know that systems are built using a number of parts Explain the benefits of a given computer system Identify tasks that are managed by computer systems Identify the human elements of a computer system Know that data is transferred over networks in packets Know that networked digital devices have unique addresses	**Communication and Collaboration:** Compare results from different search engines Complete a web search to find specific information Refine my search Explain why we need tools to find things online Recognise the role of web crawlers in creating an index Relate a search term to the search engine's index Explain that a search engine follows rules to rank relevant pages Explain that search results are ordered Suggest some of the criteria that a search engine checks to decide on the order of results

		Type my name on a computer	Talk about different rules for using IT and how they can keep me safe	Explain how messages are passed through multiple connections	Explain the types of media that can be shared and found on the WWW	Know that data is transferred using agreed methods	Describe some of the ways that search results can be influenced
		Delete letters using backspace	Explain the need to use IT in different ways	Recognise different connections	Explain that internet services can be used to create content online	Know that the internet allows different media to be shared	Explain how search engines make money
		Use the arrow keys to move the cursor	Identify the choices that I make when using IT	Demonstrate how information can be passed between devices	Know that I can add content to the WWW	Know that connected digital devices can allow us to access shared files stored online	Recognise some of the limitations of search engines
		Identify rules to keep us safe and healthy when we are using technology in and beyond the home and discuss how we benefit from these rules	Use IT for different types of activities	Explain the role of a switch, server, and wireless access point in a network	Explain that there are rules to protect content	Send information over the internet in different ways	Choose methods of communication to suit particular purposes
				Recognise that a computer network is made up of a number of devices	Explain that websites and their content are created by people	Compare working online with working offline	Explain the different ways in which people communicate
				Identify how devices in a network are connected together	Suggest who owns the content on websites	Explain how the internet enables effective collaboration	Identify that there are a variety of ways of communicating over the internet
				Identify networked devices around me	Know that not everything on the World Wide Web is true	Identify different ways of working together online	Compare different methods of communicating on the internet
				Identify the benefits of computer networks	Explain why some information I find online may not be honest or accurate	Recognise that working together on the internet can be public or private	Decide when I should and should not share
					Explain why I need to think carefully before I share or reshare content		Explain that communication on the internet may not be private
DIGITAL LITERACY AND E-SAFETY							
	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	**Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about material on the internet or other online technologies**		**Understand computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration** **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**			
Self-Image and Identity	Recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody	Recognise that there may be people online who	Explain how other people's identity online can be	Explain what is meant by the term 'identity'.	Explain how my online identity can be different to	Explain how identity online can be copied, modified or altered.	Describe issues online that might make me or others feel sad, worried,

	who asks me to do something that makes me feel sad, embarrassed or upset.	could make me feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened, give examples of when and how to speak to an adult I can trust.	different to their identity in real life. Describe ways in which people might make themselves look different online. Give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help.	Explain how I can represent myself in different ways online. Explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media).	the identity I present in 'real life' Knowing this, I can describe the right decisions about how I interact with others and how others perceive me.	I can describe responsible choices about my online identity, depending on context.	uncomfortable or frightened. I know and can give examples of how I might get help, both on and offline. Explain why I should keep asking until I get the help I need.
Online Relationships	Recognise some ways in which the internet can be used to communicate. Give examples of how I (might) use technology to communicate with people I know.	Use the internet with adult support to communicate with people I know. Explain why it is important to be considerate and kind to people online. Give examples of technology-specific forms of communication (e.g. emojis).	Give examples of how I might use technology to communicate with people I don't know well (e.g. email). Use the internet to communicate with people I don't know well). Give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak).	Describe ways people who have similar likes and interests can get together online. Explain what it means to 'know someone' online and why this might be different from knowing someone in real life. Explain some risks of communicating online with others I don't know well. Explain how my and other people's feelings can be hurt by what is said or written online. Explain why I should be careful who I trust online and what information I can trust them with. Explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. Explain what is meant by 'trusting someone online' and how this is different	Describe strategies for safe and fun experiences in a range of online social environments Give examples of how to be respectful to others online.	Explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. Make positive contributions and be part of online communities. Describe some of the communities in which I am involved and describe how I collaborate with others positively.	Show I understand my responsibilities for the well-being of others in my online social group. Explain how impulsive and rash communications online may cause problems. Demonstrate how I would support others (including those who are having difficulties) online. Demonstrate ways of reporting problems online for both myself and my friends.

				from 'liking someone online'.			
Online Reputation	Identify ways that I can put information on the internet.	Recognise that information can stay online and could be copied. Describe what information I should not put online without asking a trusted adult first	Explain how information put online about me can last for a long time. Know who to talk to if I think someone has made a mistake about putting something online.	Search for information about myself online. Recognise I need to be careful before I share anything about myself or others online. Know who I should ask if I am not sure if I should put something online.	Describe how others can find out information about me by looking online. Explain ways that some of the information about me online could have been created, copied or shared by others.	Search for information about an individual online and create a summary report of the information I find. Describe ways that information about people online can be used by others to make judgments about an individual.	Explain how I am developing an online reputation which will allow other people to form an opinion of me. Describe some simple ways that help build a positive online reputation
Online Bullying	Describe ways that some people can be unkind. Offer examples of how this can make others feel.	Describe how to behave online in ways that do not upset others and can give examples. Understand how bullying can make someone feel. Talk about how someone can/would get help about being bullied online or offline.	Give examples of bullying behaviour and how it could look online.	Explain what bullying is and can describe how people may bully others. Describe rules about how to behave online and how I follow them.	Identify some online technologies where bullying might take place. Describe ways people can be bullied through a range of media (e.g. image, video, text, chat). Explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).	Recognise when someone is upset, hurt or angry online. Describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone. Explain how to block abusive users. Explain how I would report online bullying on the apps and platforms that I use. Describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline).	Describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. Identify a range of ways to report concerns both in school and at home about online bullying.
Online Bullying (as covered in our RHE programme)		Describe the importance of being close to and trusting special people and telling them if something is troubling me Explain some safe and unsafe situations, including offline Know the difference between 'good' and 'bad' secrets and that they can and should be open with 'special people' they trust if anything troubles them Know how to resist pressure when feeling unsafe		Know that my increasing independence brings increased responsibility to keep myself and others safe Know how to use technology safely Know that what we watch, hear, say or do can be good or bad for us and others Know how to report and get help if I encounter inappropriate materials or messages		Explain what the term cyberbullying means and give examples of it Express what cyberbullying feels like for a victim Know how to get help if I experience cyberbullying Know that my increasing independence brings increased responsibility to keep myself and others safe Know how to use technology safely	

				Know that all bullying, including cyber-bullying, is wrong, and how to respond to bullying		Know that what we watch, hear, say or do can be good or bad for us and others Know how to report and get help if I encounter inappropriate materials or messages	
Managing Online Information	Talk about how I can use the internet to find things out. Identify devices I could use to access information on the internet. Give simple examples of how to find information (e.g. search engine, voice activated searching).	Use the internet to find things out. Use simple keywords in search engines Describe and demonstrate how to get help from a trusted adult if I find content that makes me feel sad, uncomfortable worried or frightened.	Use keywords in search engines. Demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). Explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri). Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. Explain why some information I find online may not be true.	Use key phrases in search engines. Explain what autocomplete is and how to choose the best suggestion. Explain how the internet can be used to sell and buy things Explain the difference between a 'belief', an 'opinion' and a 'fact'.	Analyse information and differentiate between opinions, beliefs and facts. Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true. Understand what criteria have to be met before something is a 'fact'. Describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.	Use different search technologies. Evaluate digital content and can explain how I make choices from search results. Explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence. Understand the difference between online mis-information (inaccurate information distributed by accident) and dis-information (inaccurate information deliberately distributed and intended to mislead). Explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. Explain why some information I find online may not be honest, accurate or legal. Explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation either by accident or on purpose).	Use search technologies effectively. Explain how search engines work and how results are selected and ranked. Demonstrate the strategies I would apply to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. advertising and 'ad targeting'). Demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. Know how to identify, flag and report inappropriate content.

						Explain why I need to think carefully before I forward anything online.	
Health, Wellbeing and Lifestyle	Identify rules that help keep us safe and healthy in and beyond the home when using technology and give some simple examples.	Explain rules to keep us safe when we are using technology both in and beyond the home and give examples of some of these rules.	Explain simple guidance for using technology in different environments and settings. Say how those rules/guides can help me	Explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).	Explain how using technology can distract me from other things I might do or should be doing. Identify times or situations when I might need to limit the amount of time I use technology. Suggest strategies to help me limit this time.	Describe ways technology can affect healthy sleep and can describe some of the issues. Describe some strategies, tips or advice to promote healthy sleep with regards to technology	Describe common systems that regulate age-related content (e.g. parental warnings) and describe their purpose. Assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise). Explain the importance of self-regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online).
Privacy and Security	Identify some simple examples of my personal information (e.g. name, address, birthday, age, location). Describe the people I can trust and can share this with; I can explain why I can trust them	Recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school). Explain why I should always ask a trusted adult before I share any information about myself online. Explain how passwords can be used to protect information and devices.	Describe why other people's work belongs to them. Recognise that content on the internet may belong to other people.	Give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. Understand and give reasons why passwords are important. Describe simple strategies for creating and keeping passwords private. Describe how connected devices can collect and share my information with others.	Explain what a strong password is. Describe strategies for keeping my personal information private, depending on context. Explain that others online can pretend to be me or other people, including my friends Suggest reasons why they might do this Explain how internet use can be monitored.	Create and use strong and secure passwords. Explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. Explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing.	Use different passwords for a range of online services. Describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories). Know what to do if my password is lost or stolen. Explain what app permissions are and can give some examples from the technology or services I use. Describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content

						targets people to gain money or information illegally; Describe strategies to help me identify such content (e.g. scams, phishing)
Copyright						**Web page creation:** Find copyright-free images Say why I should use copyright-free images Explain the implication of linking to content owned by others
TOPIC OVERVIEWS						
Autumn 1	*Content under development*	**Computer Systems and Networks: Technology Around Us** The children will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. The children will also consider how to use technology responsibly.	**Computer Systems and Networks: IT Around Us** The children will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries. The children will then investigate how IT improves our world, and they will consider the importance of using IT responsibly.	**Data and Information: Branching Databases** The children will develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The children will create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database.	**Computer Systems and Networks: The Internet** The children will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	**Data and Information: Flat-File Databases** The children will learn how a flat-file database can be used to organise data in records. They will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. Using a real-life database, they will answer a question, and present their work to others.	**Data and Information: Introduction to Spreadsheets** The children will be introduced to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Then, they will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. The children will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. They will use spreadsheets to plan an event and answer questions. Finally, they will create graphs and charts, and evaluate their results

							in comparison to questions asked.

		Digital Literacy/E-Safety: Self-Image and Identity	**Digital Literacy/E-Safety:** Self-Image and Identity	**Digital Literacy/E-Safety:** Self-Image and Identity	**Digital Literacy/E-Safety:** Self-Image and Identity	**Digital Literacy/E-Safety:** Self-Image and Identity	**Digital Literacy/E-Safety:** Self-Image and Identity
Autumn 2	*Content under development*	**Data and Information: Grouping Data** This unit introduces the children to data and information. Labelling, grouping, and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it must have labels. This unit of work focuses on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data.	**Programming: Programming Quizzes** The children will begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They will use and modify designs to create their own quiz questions in ScratchJr, using blocks of code. They will evaluate their work and make improvements to their programming projects.	**Programming: Sequencing Sounds** The children will explore the concept of sequencing in programming through Scratch. After an introduction to the programming environment, which will be new to most learners, the children will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. In their final project, the children will make a representation of a piano, applying their knowledge of the stages of program design.	**Creating Media: Audio Production** The children will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. They will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, the children will produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, they will evaluate their work and give feedback to their peers.	**Computer Systems and Networks: Systems and Searching** The children will develop their understanding of computer systems and how information is transferred between systems and devices. They will consider small-scale systems as well as large-scale systems and explain the input, output, and process aspects of a variety of different real-world systems. The children will also discover how information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.	**Computer Systems and Networks: Communication and Collaboration** The children will learn about the World Wide Web as a communication tool. First, they will learn how we find information on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes.
		Digital Literacy/E-Safety: Online Relationships	**Digital Literacy/E-Safety:** Online Relationships	**Digital Literacy/E-Safety:** Online Relationships	**Digital Literacy/E-Safety:** Online Relationships	**Digital Literacy/E-Safety:** Online Relationships	**Digital Literacy/E-Safety:** Online Relationships
Spring 1	*Content under development*	**Creating Media: Digital Writing** The children will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. The children will also consider how to change the look of their text, and will be able to	**Data and Information: Pictograms** The children will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms (using j2e pictogram) and finally	**Computer Systems and Networks: Connecting Computers** The children will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Then, they will be introduced to computer networks, including devices that make up a	**Data and Information: Data Logging** The children will consider how and why data is collected over time. They will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. The children will collect data as well as	**Programming: Selection in Quizzes** The children will develop their knowledge of 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if… then… else…' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. They will represent this	**Creating Media: 3D Modelling** The children will develop their knowledge and understanding of using a computer to produce 3D models. Initially, they will familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D

		justify their reasoning in making these changes. Finally, they will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.	block diagrams. They will use the data presented to answer questions.	network's infrastructure, such as wireless access points and switches. Finally, the children will discover the benefits of connecting devices in a network.	access data captured over long periods of time. They will look at data points, data sets, and logging intervals. And then spend time using a computer to review and analyse data. Towards the end of the unit, the children will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	understanding in algorithms, and then by constructing programs using the Scratch programming environment. They will learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. Finally, they use this knowledge to design a quiz in response to a given task and implement it as a program. They will evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.	and 3D graphics. They will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. Finally, the children will examine the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame.
		Digital Literacy/E-Safety: • Online Reputation • Health, Well-being and Lifestyle	**Digital Literacy/E-Safety:** • Online Reputation • Health, Well-being and Lifestyle	**Digital Literacy/E-Safety:** • Online Reputation • Health, Well-being and Lifestyle	**Digital Literacy/E-Safety:** • Online Reputation • Health, Well-being and Lifestyle	**Digital Literacy/E-Safety:** • Online Reputation • Health, Well-being and Lifestyle	**Digital Literacy/E-Safety:** • Online Reputation • Health, Well-being and Lifestyle
Spring 2	*Content under development*	**Programming: Moving a Robot** This unit introduces the children to early programming concepts. They will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. The children will also be introduced to the early stages of program design through the introduction of algorithms.	**Programming: Robot Algorithms** The children will develop their understanding of instructions in sequences and the use of logical reasoning to predict outcomes. They will use given commands in different orders to investigate how the order affects the outcome. The children will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms	**Creating Media: Stop-Frame Animation** The children will use a range of techniques to create a stop-frame animation using tablets. They will then apply these skills to create a story-based animation. They will learn to add other types of media, such as music and text, to their animation.	**Creating Media: Photo Editing** The children will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.	**Creating Media: Video Production** The children will learn how to create short videos by working in pairs or groups. As they progress, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. They will have the opportunity to reflect on and assess their progress in creating a video.	**Programming: Variables in Games** The children will explore the concept of variables in programming through games in Scratch. First, they will learn what variables are, and relate them to real-world examples of values that can be set and changed. The children will then use variables to create a simulation of a scoreboard. They will experiment with variables in an existing project, then modify them, then they will create their own project. Finally, the children will apply their

			as programs and debug them.				knowledge of variables and design to improve their game in Scratch.
			Digital Literacy/E-Safety: Managing Online Information	**Digital Literacy/E-Safety:** Managing Online Information	**Digital Literacy/E-Safety:** Managing Online Information	**Digital Literacy/E-Safety:** Managing Online Information	**Digital Literacy/E-Safety:** Managing Online Information
Summer 1	*Content under development*	**Creating Media: Digital Painting** The children will develop their understanding of a range of tools used for digital painting. They will then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The children will conclude by considering their preferences when painting with and without the use of digital devices.	**Creating Media: Digital Music** The children will use a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. They will compare creating music digitally and non-digitally using patterns to do so.	**Creating Media: Desktop Publishing** The children will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. They will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template. They will start to add text and images to create their own pieces of work using desktop publishing software. Finally, they will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	**Programming: Repetition in Shapes** The children will create programs by planning, modifying, and testing commands to create shapes and patterns. They will learn about repetition and loops within programming.	**Creating Media: Vector Graphics** The children will find out that vector images are made up of shapes. They will learn how to use the different drawing tools and how images are created in layers. They will explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work.	**Programming: Sensing Movement** The children will use elements of all the four programming constructs: sequence, repetition, selection and variables while also utilising a physical device — the micro:bit. To begin, they will explore a simple program to build and test in within the programming environment. They will then transfer their skills to their micro:bit. The children will work towards creating their own design. For this, they will apply their knowledge of the programming constructs and use their design to create their own micro:bit-based step counter.
		Digital Literacy/E-Safety: Online Bullying	**Digital Literacy/E-Safety:** Online Bullying	**Digital Literacy/E-Safety:** Online Bullying	**Digital Literacy/E-Safety:** Online Bullying	**Digital Literacy/E-Safety:** Online Bullying	**Digital Literacy/E-Safety:** Online Bullying
Summer 2	*Content under development*	**Programming: Programming Animation** The children will be introduced to on-screen programming through	**Creating Media: Digital Photography** The children will learn to recognise that different devices can be used to	**Programming: Events and Actions in Programming** The children will explore the links between events and actions, while	**Programming: Repetition in Games** The children will explore the concept of repetition in programming using the	**Programming: Selection in Physical Computing** The children will use physical computing to explore the concept of	**Creating Media: Web Page Creation** The children will be introduced to creating websites for a chosen

			ScratchJr. They will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. The children will also be introduced to the early stages of program design through the introduction of algorithms.	capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	consolidating prior learning relating to sequencing. They will begin by moving a sprite in four directions (up, down, left, and right). They will then explore movement within the context of a maze, using design to choose an appropriately sized sprite. The children will also be introduced to programming extensions, through the use of Pen blocks. They will draw lines with sprites and change the size and colour of lines. Finally, they will design and code their own maze-tracing program.	Scratch environment. They will discover the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. In their final project, they will design and create a game which uses repetition, applying stages of programming design throughout.	selection in programming through the use of the Crumble programming environment. They will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices — LEDs and motors). The children will design and make a working model of The London Eye that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model.	purpose. They will identify what makes a good web page and use this information to design and evaluate their own website. Throughout the process, the children will pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.
			Digital Literacy/E-Safety: Privacy and Security	**Digital Literacy/E-Safety:** Privacy and Security	**Digital Literacy/E-Safety:** Privacy and Security	**Digital Literacy/E-Safety:** Privacy and Security	**Digital Literacy/E-Safety:** Privacy and Security	**Digital Literacy/E-Safety:** • Copyright • Privacy and Security