Rivelin Primary Computing Overview

EYFS

Barefoot Computing

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Awesome Autumn – Garlands Awesome Autumn – Leaf labyrinth Awesome Autumn – Pumpkin soup	Winter warmers – Feed the birds Winter warmers – Scarves for snowmen Winter warmers – Let's make an igloo	Springtime – Junk scarecrows Springtime – Rabbit run Springtime – Seed sequencing	Busy bodies – Parts of a body Busy bodies – Make a body Busy bodies – Look how we grow	Boats ahoy – What is a boat? Boats ahoy – Is this a good boat? Boats ahoy – Onboard role play Boats ahoy – Build a boat	Summer fun – Colour collections Summer fun – Journeys Summer fun – Seaside tangrams
Computational thinking - Concepts and approaches covered					
• Creating • Pattern • Logic • Algorithms • Decomposition • Collaborating	• Algorithms • Decomposition • Creating • Collaborating • Pattern • Logic • Tinkering • Persevering	• Abstraction • Tinkering • Creating • Collaborating • Algorithms • Persevering • Decomposition	• Logic • Pattern • Abstraction • Decomposition • Algorithms • Pattern	• Logic • Pattern • Abstraction • Tinkering • Decomposition • Creating • Collaborating • Algorithms	• Creating • Pattern • Persevering • Logic • Algorithms • Collaborating • Tinkering • Debugging

Year 1					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computer systems and networks: Technology around us	**Programming A: Moving a robot**	**Creating media: Digital writing**	**Programming B: Introduction I can animation**	**Data and information: Grouping Data**	**Creating media: Digital painting**
Objectives					
I can identify technology I can identify a computer and its main parts I can use a mouse in different ways I can use a keyboard I can type I can use the keyboard I can edit text I can create rules for using technology responsibly	I can explain what a given command will do I can act out a given word I can combine forwards and backwards commands I can make a sequence I can combine four direction commands I can make sequences I can plan a simple program	I can use a computer I can write I can add and remove text on a computer I can identify that the look of text can be changed on a computer I can make careful choices when changing text I can explain why I used the tools that I chose	I can choose a command for a given purpose I can show that a series of commands can be joined together I can identify the effect of changing a value I can explain that each sprite has its own instructions I can design the parts of a project	I can label objects I can identify that objects can be counted I can describe objects in different ways I can count objects with the same properties I can compare groups of objects I can answer questions about groups of objects	I can describe what different freehand tools do I can use the shape tool and the line tools I can make careful choices when painting a digital picture I can explain why I chose the tools I used I can use a computer on my

	I can find more than one solution I can a problem	I can compare writing on a computer with writing on paper	I can use my algorithm I can create a program		own I can paint a picture I can compare painting a picture on a computer and on paper
Declarative Knowledge – Concepts					
Know that technology is something that helps us Identify examples of technology Explain how technology helps us Recognise a computer is an example of tech nology Recognise choices are made when using technology	Recall words that can be enacted Explain what a given command does Match a command I can an outcome Understand that a program is a set of commands that a computer can run	Recognise that a keyboard is used I can enter text into a computer Recognise that the Shift key changes the output of a key Recognise that text can be changed Recognise that text can be edited	Enact a given word Recall words that can be enacted Predict the outcome of a command Know that commands can be used on a given Explain what a given command does Match a command I can an outcome	Identify that objects can be counted Recognise that information can be presented Recognise that information can be presented in different ways	Explain what different freehand tools do Recognise computers can be used I can create art Recognise a tool can be adjusted I can suit my need Decide when it's appropri ate I can use each tool

			Recognise how I can run a command (press a button) Choose a command for a given purpose		
Procedural knowledge – Skills					
Choose technology I can do a job Identify main parts of a computer – mouse, keyboard, monitor Use a mouse Use a keyboard I can type and edit text	Enact a given word Predict the outcome of a command List which commands can be used Run a command on a floor robot Choose a command for a given purpose Choose a series of words that can be enacted as a program Build a sequence of commands	Use letter, number, and Space keys to enter text into a computer Use punctuation and special characters Select text Use the Backspace key I can remove text Position the text cursor in a chosen location	Choose a series of words that can be enacted as a program Choose a series of commands that can be run as a program Run a program on a device	Identify some attributes of an object Collect simple data Show that collected data can be counted Describe the properties of an object Choose an attribute I can group objects by Group objects I can answer questions Explain that objects can be grouped by similarities (attribute)	Create a picture using freehand tools Use shape and line tools when precision is needed Use a range of paint colours Use the fill tool I can colour an enclosed area Use the undo button I can correct a mistake

	Combine commands in a program Run a program on a device	Choose options I can achieve a desired effect Use Undo		Describe a group of objects (based on commonality)	Combine a range of tools I can create a piece of artwork
Vocabulary					
• Technology • Desktop • Laptop • Computer • Mouse • Trackpad • Login • Username • Password • Keyboard • Edit • Spacebar	• Robot • Direction • Command • Sequence • Predict • Program • Run	• Word processor • Keys • Space • Backspace • Caps Lock • Bold • Italic • Underline • Double click • Font • Undo	• Sprite • Programming • Start block • Algorithm • Value • Programming area • Programming block • Animation	• Object • Label • Group • Data • Properties • Classify	• Paint tools- fill, brush, shape, line • undo • Save • Retrieve

Year 2					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computer systems and networks: IT around us	**Data and information: Pictograms**	**Creating media: Making music**	**Programming A: Robot algorithms**	**Creating media: Digital photography**	**Programming B: Introduction I can quizzes**
Objectives					
I can recognise the uses and features of information technology I can identify information technology at home I can identify information technology beyond school I can explain how information technology benefits us	I can recognise that we can count and compare objects using tally charts I can recognise that objects can be represented as pictures I can create a pictogram I can select objects by attribute and make comparisons I can recognise that people can be	I can say how music can make us feel I can identify that there are patterns in music I can describe how music can be used in different ways I can show how music is made from a series of notes I can create music for a purpose I can review and refine our computer work	I can describe a series of instructions as a sequences I can explain what happens when we change the order of instructions I can use logical reasoning I can predict the outcome of a program I can explain that programming projects can have code and artwork	I can know what devices can be used I can take photographs I can use a digital device I can take a photograph I can describe what makes a good photograph I can decide how photographs can be improved I can use tools I can change an image I can recognise that images can be changed	I can explain that a sequence of commands has a start I can explain that a sequence of commands has an outcome I can create a program using a given design I can change a given design I can create a program using my own design

I can show how I can use information technology safely I can recognise that choices are made when using information technology	described by attributes I can explain that we can present information using a computer		I can design an algorithm I can create and debug a program that I have written		I can decide how my project can be improved
Declarative Knowledge – Concepts					
Recognise different types of computers used in school Identify that a computer is a part of information technology Recognise the features of information technology	Use a tally chart I can collect data Compare objects that have been grouped by attribute Suggest appropriate headings for tally charts and pictograms Construct (complete) a given comparison question	Identify that computers can be used I can play sounds of different instruments Identify that the same pattern can be represented in different ways Compare playing music on instruments with making music on a computer	Describe that a series of instructions is a sequence Recall that a series of instructions can be issued before they are enacted Explain what happens when we change the order of instructions	Recognise that some digital devices can capture images using a camera Talk about how I can take a photograph Recognise that photographs can be saved and viewed later Make choices when composing my photograph	Describe a series of instructions as a 'sequence' Recall that a series of instructions can be issued before they are enacted Use logical reasoning I can predict the outcome of a program

Talk about uses of information technology Say how rules for using information technology can help us Explain how information technology benefits us Recognise that choices are made when using information technology	Use a computer program I can present information in different ways Explain that we can present information using a computer Give simple examples of why some information should not be shared		Recognise that you can predict the outcome of a program	Recognise features of 'good' photographs Identify how a photograph could be improved Explain the effect of light on a photograph Recognise that photographs can be change after they have been taken Recognise that some images are not accurate	
Procedural knowledge - Skills					
Describe some uses of computers Identify information technology in school	Recognise that people, animals and objects can be described by attributes	Experiment with different sounds on a computer Experiment with musical patterns on a computer	Choose a series of words that can be enacted as a sequence	Capture a digital image Take photographs in both landscape and portrait format	Choose a series of words that can be enacted as a sequence Explain what happens when we

Identify information technology beyond school Show how I can use information technology safely	Show I can enter data onto a computer Use a computer I can view data in different formats Use pictograms I can answer single-attribute questions Use a computer I can answer comparison questions (graphs, tables)	Use a computer I can create a musical pattern Use a computer I can compose a rhythm and a melody on a given theme Use a computer I can play the same music in different ways (e.g. tempo) Evaluate a musical composition created on a computer Improve a musical composition created on a computer	Choose a series of instructions that can be run as a program Create a program Trace a sequence I can make a prediction Run a program on a device Debug a program that I have written	View photographs on a digital device Decide which photographs I can keep Hold the camera still I can take a clear photograph Consider lighting before taking a photograph Use filters I can edit the appearance of a photograph Improve a photograph by retaking it	change the order of instructions Choose a series of commands that can be run as a program Trace a sequence I can make a prediction Test a prediction by running the sequence Create and debug a program that I have written Run a program on a device
Vocabulary					
• Information technology • Device	• Pictogram • Tally • Count	• Rhythm • Rhythm pattern	• Outcome • Algorithm	• Capture • Digital photograph	• Green flag (Within scratch Jr.)

• Examples of IT- Barcode scanner, printer, tablet, chip and pin machine, card reader	• Compare • Attributes • Block diagram	• Pitch • Musical pattern • Sequence of notes	• Execute (run)	• Portrait • Landscape • Format • Photography composition • Retake • Artificial light • Natural light • Camera focus • Effects • Edit • Adjust	• Background • Modify • Debug

Year 3					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computing systems and networks: Connecting computers	**Creating media: desktop publishing**	**Data and information: Branching databases**	**Programming A: Sequencing sounds**	**Creating media: Stop-frame animation**	**Programming B: Events and actions in programs**
Objectives					
I can explain how digital devices function I can identify input and output devices I can recognise how digital devices can change the way we work I can explain how a computer network can be used I can share information I can explore how digital devices can be connected	I can recognise how text and images convey information (copyright) I can recognise that text and layout can be edited I can choose appropriate page settings I can add content I can a desktop publishing publication I can consider how different layouts can	I can create questions with yes/no answers I can identify the object attributes needed I can collect relevant data I can create a branching database I can identify objects using a branching database I can explain why it is helpful for a database I can be well structured	I can explore a new programming environment I can identify that each sprite is controlled by the commands I choose I can explain that a program has a start I can recognise that a sequence of commands can have an order I can change the appearance of my project	I can explain that animation is a sequence of drawings or photographs I can relate animated movement with a sequence of images I can plan an animation I can identify the need I can work consistently and carefully I can review and improve an animation I can evaluate the impact of adding other	I can explain how a sprite moves in an existing project I can create a program I can move a sprite in four directions I can adapt a program I can a new context I can develop my program by adding features I can identify and fix bugs in a program

I can recognise the physical components of a network	suit different purposes I can consider the benefits of desktop publishing	I can compare the information shown in a pictogram with a branching database	I can create a project from a task description	media I can an animation	I can design and create a maze-based challenge
Declarative Knowledge – Concepts					
I can describe what an input is Explain that a process acts on the inputs Explain that an output is produced by the process Identify how changing the process can affect the output Recognise that a digital device is made up of several parts	Recognise how text and images can be used together I can convey information Define landscape and portrait as two different page orientations Consider how different layouts can suit different purposes Recognise that DTP pages can be	Investigate questions with yes/no answers Identify attributes that you can ask yes/no questions about Select an attribute I can separate objects into two similarly sized groups Explain that a branching database	Explain that programs start because of an input Explain what a sequence is Identify that a program includes sequences of commands Identify that the sequence of a program is a process	Explain that an animation is made up of a sequence of images Identify that a capturing device needs I can be in a fixed position Recognise that smaller movements create a smoother animation Explain the need for consistency in working	Explain that programs start because of an input Explain what a sequence is Identify that a program includes sequences of commands Identify that the sequence of a program is a process

Recognise that computers can be connected I can each other Identify the benefits of computer networks Identify how devices in a network are connected with one another Recognise that a network is made up of a number of components Explain how information is passed through multiple connections Explain how computer systems can change the way that we work	structured with placeholders Recognise how different font styles and effects are used for particular purposes Consider the benefits of using a DTP application	is an identification tool Recognise that a data set can be structured using yes/no questions Explain that a well-structured branching database will enable you I can Identify objects using fewer questions Relate two levels of a branching database using AND Suggest real-world applications for branching databases	Explain that the order of commands can affect a program's output Identify that different sequences can achieve the same output Identify that different sequences can achieve different outputs	Explain the impact of adding other media I can an animation Explain that a project must be exported so it can be shared	Explain that the order of commands can affect a program's output Identify that different sequences can achieve the same output Identify that different sequences can achieve different outputs

Procedural knowledge - Skills					
Identify input and output devices Explain that a computer system accepts an input and processes it I can produce an output Explain how a computer network can be used I can share information Explain the role of a switch, server and wireless access point in a network Identify network devices around me Explain how networks can be connected I can other networks	Show that page orientation can be changed Add text I can and in a placeholder Choose fonts and apply effects I can text Organise text and image placeholders in a page layout Add and remove images I can and from placeholders Move resize and rotate images Review a document	Create questions with yes/no answers Choose questions that will divide objects into evenly sized subgroups Repeatedly create subgroups of objects Identify an object using a branching database Retrieve information from different levels of the branching database	Build a sequence of commands Combine commands in a program Order commands in a program Create a sequence of commands I can produce a given outcome	Set up the work area with an awareness of what will be captured Plan an animation using a storyboard Capture an image Use the onion skinning tool I can review subject position Move subjects between captures Review a captured sequence of frames as an animation Remove frames I can improve an animation Add media I can enhance an animation	Build a sequence of commands Combine commands in a program Order commands in a program Create a sequence of commands I can produce a given outcome

				Review a completed project	
Vocabulary					
• Input • Process • Output • Network • Network components • Server • Wireless Access Point • Network switch	• Adobe spark • Text • Image • Desktop publishing • Return • Shift • Template • Page orientation • Place holder • Layout	• Tree structure • Branching database	• Scratch • Backdrop • Code • Motion block • Event block • Motion • Stage	• Animation • Frame • Stop-frame animation • Story board • Sequence of frames • Onion skinning	• Event • Action • Code • Programming extension • Pen extension • Pen down block • Bugs • Debugging • Outcome • Pen trail • Set up block

Year 4					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Programming A: Repetition in shapes	**Creating media: Photo editing**	**Data and information: Data logging**	**Creating media: Audio production**	**Computing systems and networks: The Internet**	**Programming B:**
Objectives					
I can identify that accuracy in programming is important I can create a program in a text-based language I can explain what 'repeat' means I can modify a count-controlled loop I can produce a given outcome I can decompose a program into parts	I can explain that digital images can be changed I can change the composition of an image I can describe how images can be changed for different uses I can make good choices when selecting different tools I can recognise that not all images are real	I can explain that data gathered over time can be used I can answer questions I can use a digital device I can collect data automatically I can explain that a data logger collects 'data points' from sensors over time I can use data collected over a long duration I can find information	I can identify that sound can be digitally recorded I can use a digital device I can record sound I can explain that a digital recording is stored as a file I can explain that audio can be changed through editing I can show that different types of audio can be	I can describe how networks physically connect I can other networks I can recognise how networked devices make up the internet I can outline how websites can be shared via the world wide web I can describe how content can be added and accessed on the world wide web	I can develop the use of count-controlled loops in a different programming environment I can explain that in programming there are infinite loops and count controlled loops I can develop a design which includes two or more loops which run at the same time

I can create a program that uses count-controlled loops I can produce a given outcome	I can evaluate how changes an improve an image	I can identify the data needed I can answer questions I can use collected data I can answer questions	combined and played together I can evaluate editing choices made	I can recognise how the content of the WWW is created by people I can evaluate the consequences of unreliable content	I can modify an infinite loop in a given program I can design a project that includes repetition I can create a project that includes repetition
Declarative Knowledge – Concepts					
Relate what 'repeat' means Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves Explain that we can use a loop command in a program I can repeat instructions	Recognise that digital images can be manipulated Recognise that digital images can be changed for different purposes Consider the impact of changes made on the quality of the image	Suggest questions that can be answered using a table of data Identify data that can be logged over time Identify that sensors are input devices Recognise that a sensor can be used	Identify that sound can be recorded Identify that an input device is needed I can record sound Identify that output devices are needed I can play audio Recognise that recorded audio can	Describe how networks connect I can other networks Recognise that the World Wide Web is part of the internet Outline how information can be shared via the World Wide Web Explain that the global interconnection of networks is the internet	Relate what 'repeat' means Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves Explain that we can use a loop command in a program I can repeat instructions

Identify patterns in a sequence Identify a loop within a program Explain that in programming there are indefinite loops and count-controlled loops Explain that an indefinite loop will run until the program is stopped Explain that you can program a loop I can stop after a specific number of times Identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step'		as an input device for data collection Explain that a data logger captures 'data points' from sensors over time	be stored on a computer Recognise that audio can be edited Recognise that sound can be represented visually as a waveform Recognise that audio can be layered so that multiple sounds can be played at the same time Consider the results of editing choices made	Recognise the need for security on the internet Describe how I can access the World Wide Web Describe the types of content/media that can be added, created, and shared on the World Wide Web Explain how the content of the World Wide Web is created, owned, and shared by people Explain that the internet enables us I can view the World Wide Web Explain that the World Wide Web comprises of	Identify patterns in a sequence Identify a loop within a program Explain that in programming there are indefinite loops and count-controlled loops Explain that an indefinite loop will run until the program is stopped Explain that you can program a loop I can stop after a specific number of times

Justify when I can use a loop and when not I can Explain the importance of instruction order in a loop Recognise that not all tools enable more than one process I can be run at once				websites and web pages Describe the current limitations of World Wide Web media Evaluate the reliability of content and the consequences of unreliable content Explain the benefits of the World Wide Web	Identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' Justify when I can use a loop and when not I can Explain the importance of instruction order in a loop Recognise that not all tools enable more than one process I can be run at once
Procedural knowledge - Skills					
List an everyday task as a set of instructions including repetition Use an indefinite loop I can produce a given outcome	Use an application I can change the whole of a digital image Change the composition of a	Use a digital device I can collect data automatically Choose how often I can automatically collect data samples	Record sound using a computer Play recorded audio Import audio into a project		List an everyday task as a set of instructions including repetition

Use a count-controlled loop I can produce a given outcome Plan a program that includes appropriate loops I can produce a given outcome Recognise tools that enable more than one process I can be run at the same time (concurrency) Create two or more sequences that run at the same time	digital image by rotating and flipping Change the composition of a digital image by cropping Adjust colours of a digital image Apply filters I can a digital image Apply effects I can a digital image Use an application I can change part of a digital image Select part of a digital image Use clone, copy, and paste I can change the	Use a set of logged data I can find information Use a computer program I can sort data by one attribute Export information in different formats	Delete a section of audio Change the volume of tracks in a project		Use an indefinite loop I can produce a given outcome Use a count-controlled loop I can produce a given outcome Plan a program that includes appropriate loops I can produce a given outcome Recognise tools that enable more than one process I can be run at the same time (concurrency) Create two or more sequences that run at the same time

	composition of a digital image Use cloning I can retouch a digital image Use an application I can add I can the composition of a digital image Add text I can a digital image Choose the most appropriate tool for a particular purpose				
Vocabulary					
• Logo (website used) • Logo command • Code snippet • Repeat • Loop	• Rotate • Crop • Filter • Colour effect • Cloning • Photo retouch • Duplicate	• Data logger • Data set • Data collection • Sensors • Data points • Data file • Logged data	• Input device • Output device • Microphone • Copyright • Recording	• Router • World Wide Web • Online content	• Count-controlled l oop • Loop • Snippet of code • Infinite loop

• Count controlled loop • Decompose/ decomposition • Procedures	• Combined image		• Podcast • Soundwave view • 'Trim' recording • Import • Align • Layers (in recording) • Sound effect • Background music • Audio file		• Event block • Code blocks

Year 5					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Computing systems and networks: Systems and searching	**Creating media: video production**	**Programming A: Selection in physical computing**	**Data and information: Flat file databases**	**Creating media: Introduction I can vecI canr graphics**	**Programming B: Selection in quizzes**
Objectives					
I can explain that computers can be connected together I can form systems I can recognise the role of computer systems in our lives I can recognise how information is transferred over the internet I can explain how sharing information online lets people in different places work together	I can recognise video as moving pictures, which can include audio I can identify digital devices that can record video I can capture video using a digital device I can recognise the features of an effective video I can identify that video can be improved through	I can control a simple circuit connected I can a computer I can write a program that includes count-controlled loops I can explain that a loop can be used I can repeatedly check whether a condition has been met I can design a physical project that includes selection	I can use a form I can record information I can compare paper and computer-based databases I can outline how grouping and then sorting data allows us I can answer questions I can explain that tools can be used I can select specific data I can explain that computer programs	I can identify that drawing tools can be used I can produce different outcomes I can create a vector drawing by combing shapes I can use tools I can achieve a desired effect I can recognise that vector drawings, consist of layers I can group objects I can make them easier I can work with	I can explain how selection is used in computer programs I can relate that a conditional statement connects a condition I can an outcome I can explain how selection directs the flow of a program I can design a program which uses selection

I can contribute I can a shared project online I can evaluate different ways of working together online	reshooting and editing I can consider the impact of the choices made when making and sharing a video	I can create a controllable system that includes selection	can be used I can compare data visually I can apply my knowledge of a database I can ask and answer real-world questions	I can evaluate my vector drawing	I can create a program which uses selection I can evaluate my program
Declarative Knowledge – Concepts					
Recognise that a system is a set of interconnected parts which work together Explain that computers can be connected together I can form IT systems Identify that data can be transferred between IT systems Recognise inputs, processes, and	Explain the features of video as a visual media format Recognise which devices can and can't record video Explain the purpose of a storyboard Recognise that filming techniques can be used I can create different effects	Explain that a condition can only be true or false Relate that a count-controlled loop contains a condition Compare a count-controlled loop with a condition-controlled loop Explain that a condition-controlled loop will stop when a condition is met	Explain that a computer program can be used I can organise data Outline how ordering data allows us I can answer some questions Explain that tools can be used I can select data I can answer questions	Identify that a vector drawing comprises separate objects Recognise that each object in a drawing is in its own layer Recognise that vector images can be scaled without impact on quality Recognise that objects can be modified in groups	Explain that a condition can only be true or false Relate that a count-controlled loop contains a condition Compare a count controlled loop with a condition-controlled loop Explain that a condition-controlled loop

outputs in large IT systems Describe the role of a particular IT system in their lives Relate that search engines are examples of large IT systems Explain why search engines create indices, and that they are different for each search engine Explain the role of web crawlers in creating an index Explain how search results are selected Explain that ranking orders search results I	Recognise the need I can regularly review and reflect on a video project Identify videos can be improved through and reshooting or editing Identify that videos can be edited on a recording device or on a computer Explain the limitations of editing video on a recording device Recognise projects need I can be exported I can be shared	Explain that when a condition is met, a loop will complete a cycle before it stops Explain that selection can be used I can branch the flow of a program Explain that a loop can be used I can repeatedly check whether a condition has been met Explain the importance of instruction order in 'if...then...else...' statements	Outline how operands can be used I can filter data Outline how 'AND' and 'OR' can be used I can refine data selection Explain that computer programs can be used I can compare data visually Explain that we present information I can communicate a message	Explain how alignment and size guides can help create a more consistent drawing Consider the impact of choices made	will stop when a condition is met Explain that when a condition is met a loop will complete a cycle before it stops Explain that selection can be used I can branch the flow of a program Explain that a loop can be used I can repeatedly check whether a condition has been met Explain the importance of instruction order in 'if... then... else...' statements

can make them more useful Explain how ranking is determined by rules, and that different search engines use different rules Explain why the order of results is important and I can whom Explain how search engines make money by selling targeted advertising space Identify some of the limitations of search engines					
Procedural knowledge - Skills					
Describe the input and output of a search engine	Use different camera angles Use pan, tilt and zoom	Create a condition-controlled loop Use a condition in an 'if...then…'	Choose different ways I can view data Choose which attribute and value I	Add an object I can a vector drawing Select one object or multiple objects	Choose a condition I can use in a program

Demonstrate that different search terms produce different results Evaluate the results of search terms	Identify features of a video recording device or application Combine filming techniques for a given purpose Determine what scenes will convey your idea Decide what changes I will make when editing Choose I can reshoot a scene or improve later through editing Use split, trim and crop I can edit a video	statement I can start an action Use selection I can switch the program flow in one of two ways Use a condition in an 'if...then...else…' statement I can produce given outcomes	can search by I can answer a given question (operands) Ask questions that need more than one attribute I can answer Choose which attribute I can sort data by I can answer a given question Choose multiple criteria I can search data I can answer a given question (AND and OR) Select an appropriate graph I can visually compare data Choose suitable ways I can present	Delete objects Move objects between the layers of a drawing Group and ungroup selected objects Duplicate objects using copy and paste Modify objects Reposition objects Combine options I can achieve a desired effect Create a vector drawing for a given purpose	Create a condition-controlled loop Use a condition in an 'if... then…' statement I can start an action Use selection I can switch program flow Use 'if... then... else…' I can switch program flow in one of two ways

			information I can other people		
Vocabulary					
• Digital system • Physical connection • Electronic connection • Computer system • Search engine • Rank • Web search • Web crawler • Search engine index • Content creator	• Visual media • Store • Retrieve • Export • Reshoot	• Microbit • Programming environment • Circuit • Microcontroller • Component • Infinite loop • Count-controlled loop • Condition • Conditional loop • Selection • Action	• Record • Field • Database • Sorting • Grouping	• Vector • Vector drawing • Alignment grid • Resize handle • Zoom tool • Layers • Duplicate (images) • Group and ungroup (images)	• Conditions • 'if...then...else' structure • Program flow • Branching structure • Setup code

Year 6					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Data and information: Introduction I can spreadsheets	**Computing systems and networks: Communication and collaboration**	**Creating media: Webpage creation**	**Programming A: Variables in games**		**Creating media: 3D modelling**
Objectives					
I can identify questions which can be answered using data I can explain that objects can be described using data I can explain that formula can be used I can produce calculated data I can apply formulas I can data including duplicating	I can identify how I can use a search engine I can describe how search engines select results I can explain how search results are ranked I can recognise why the order of results is important, and I can whom I can recognise how we communicate using technology	I can review an existing website and consider its structure I can plan the features of a web page I can consider the ownership and use of images (copyright) I can recognise the need I can preview pages	I can define a 'variable' as something that is changeable I can explain why a variable is used in a program I can choose how I can improve a game by using variables I can design a project that builds on a given example I can use my design I can create a project I can evaluate my project		I can use a computer to create and manipulate three-dimensional (3D) digital objects I can compare working digitally with 2D and 3D graphics I can construct a digital 3D model of a physical object I can identify that physical objects can be broken down into a

I can create a spreadsheet I can plan an event I can choose suitable ways I can present data	I can evaluate different methods of online communication	I can outline the need for a navigation path I can recognise the implications of linking I can content owned by other people		collection of 3D shapes I can design a digital model by combining 3D objects I can develop and improve a digital 3D model
Declarative Knowledge – Concepts				
Identify questions that can be answered using spreadsheet data Explain what an item of data is in a spreadsheet Explain how the data type determines how a spreadsheet can process the data	Recognise that data is transferred across networks using agreed protocols (methods) Recognise that connections between computers allow access to shared stored files Explain that data is transferred in packets	Recognise the relationship between HTML and visual display Recognise that web pages can contain different media types Recognise that web pages are written by people	Define a 'variable' as something that is changeable Identify examples of information that is variable, for example, a football score during a match Explain that a variable can be used in a program, eg 'score' Define a program variable as a placeholder in memory for a single value Explain that a variable has a name and a value	Explain that 3D models can be created on a computer Recognise that a 3D environment can be viewed from different perspectives Recognise that digital tools can be used to

Outline that there are different software tools to work with data Explain that formulas can be used to produce calculated data Recognise cells can be linked Explain why data should be organised in a spreadsheet Recognise that a cell's value automatically Updates when the value in a linked cell is changed Evaluate results in comparison to the question asked	Recognise computers connected to the internet allow people in different places to work together Discuss the opportunities that technology offers for communication and collaboration Explain which types of media can be shared through the internet Explain that communicating and collaboration using the internet can be public or private	Recognise that a website is a set of hyperlinked web pages Recognise components of a web page layout Consider the ownership and use of images (copyright) Recognise the need to preview pages (different screens / devices) Recognise the need for a navigation path Recognise the implications of linking to content owned by others	Recognise that the value of a variable can be used by a program Recognise that the value of a variable can be updated Define the way that a variable is changed Recognise that a variable can be set as a constant (fixed value) Identify that variables can hold numbers (integers) or letters (strings) Explain the importance of setting up a variable at the start of a program (initialisation) Explain that there is only one value for a variable at any one time Explain that if you change the value of a variable, you cannot access the previous value (cannot undo) Explain that if you read a variable, the value remains	manipulate 3D objects Show how placeholders can create holes in 3D objects Recognise that artefacts can be broken down into a collection of 3D objects

			Explain that the name of a variable is meaningless to the computer Explain that the name of a variable needs to be unique	
Procedural knowledge - Skills				
Calculate data using a formula for each operation Use functions to create new data Use existing cells within a formula Choose suitable ways to present spreadsheet data	Outline methods of communicating and collaborating using the internet Choose methods of internet communication and collaboration for given purposes Evaluate different methods of online communication and collaboration Decide what you should and should not share online	Review an existing website (navigation bars, header) Create a new blank web page Add text to a web page Set the style of text on a web page Embed media in a web page Change the appearance of text Embed media in a web page	Identify a variable in an existing program Experiment with the value of an existing variable Choose a name that identifies the role of a variable to make it easier for humans to understand it Decide where in a program to set a variable Update a variable with a user input Use an event in a program to update a variable Use a variable in a conditional statement to control the flow of a program Use the same variable in more than one location in a program	Position 3D shapes relative to one another Use digital tools to modify 3D objects Combine objects to create a 3D digital artefact Use digital tools to accurately size 3D objects Construct a 3D model which reflects a real world object

		Add web pages to a website Insert hyperlinks between pages Insert hyperlinks to another site Preview a web page (different screen sizes)		
Vocabulary				
• Data input • Spreadsheet • Cell • Cell format • Produce calculated data • Formula • Cell references • Duplicate	• Web address • IP address • Domain Name Server (DNS) • Data packet • Header • Data payload • Copyright • Internet communication • Internet	• HTML code • Web layout • Copyright • Copyright-free • Fair use • Navigation path • Hyperlink • User experience	• Variable • Program variable • Value	• 3D model • Three dimensions • Lift • Lower • Workplane • Recolour • Placeholders

	collaboration • Security • Privacy			