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Communicating Computer technologists use ICT to communicate with a range of audiences, and to research information.	**Publishing** Computer technologists use a range of software to present and record information.	**Coding** Computer technologists create and debug programmes.	**Safety** Computer technologists know how to use ICT equipment, communication devices and the internet safely.	**Vocabulary** Computer technologists use appropriate subject-specific vocabulary.

	Communicating	**Publishing**	**Coding**	**Safety**	**Vocabulary**
N	Disciplinary Knowledge Know that information can be retrieved from computers.	Disciplinary Knowledge Know how to operate simple equipment. Substantive Knowledge Know how to show an interest in technological toys with knobs or pulleys, or real objects. Know how to show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.			
Rec	Disciplinary Knowledge Know how to interact with age-appropriate computer software.	Disciplinary Knowledge Know that a range of technology is used in places such as homes and schools. Substantive Knowledge Know how to select and use technology for particular purposes.	Substantive Knowledge Know how to complete a simple program on a computer.		
Year 1	Disciplinary Knowledge Know that objects can be counted. Substantive Knowledge Know how to label objects. Know how to describe objects in different ways. Know how to count objects with the same properties. Know how to compare groups of objects. Know how to answer questions about groups of objects.	Disciplinary Knowledge Know how to make careful choices when painting a digital picture. Know how to explain why I chose the tools I used. Know how to compare painting a picture on a computer and on paper. Know how to make careful choices when changing text. Know how to compare writing on paper and writing on computer. Substantive Knowledge Know what different freehand tools do. Know how to use the shape tool and the line tools. Know how to use a computer on my own to paint picture. Know how to use a computer to write. Know how to add and remove text on a computer. Know that the look of text can be changed on a computer.	Disciplinary Knowledge Find more than one solution to a problem. Substantive Knowledge Explain what a given command will do. Act out a given word. Combine forwards and backwards commands to make a sequence. Combine four direction commands to make a sequence. Plan a simple program. Choose a command for a given purpose. Show that series of commands can be joined together. Identify the effect of changing a value. Explain that each sprite has its own instructions. Design the parts of a project. Use an algorithm to create a program.	Disciplinary Knowledge Identify technology. Create rules for using technology responsibly. Learn the importance of keeping information private. Substantive Knowledge Identify a computer and its main parts. Use a mouse in different ways. Use a keyboard to type Use a keyboard to edit text. Know how to organise, store and retrieve digital content. Identify where to go for help and support.	algorithm, instructions, left, right, program, debugging, forwards, backwards, direction, keys, block code, stop →tools, drawing, e-book, animation, sound, recording, paste, copy, spreadsheet, image, cells, sheet, count, →Avatar, log in, save, my work, folder, print, open, new, icon, log out
Year 2	Disciplinary Knowledge Create music for a purpose. Review and refine our computer work. Substantive Knowledge Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Disciplinary Knowledge Make choices when taking a photograph. Describe what makes a good photograph. Decide how photographs can be improved Recognise that images can be changed. Recognise that we can count and compare objects using tally charts. Recognise that objects can be represented as pictures. Recognise that people can be described by attributes. Explain that we can present information using a computer. Substantive Knowledge Know what devices can be used to take photographs. Use a digital device to take a photograph. Use tools to change an image. Create a pictogram Select object by attribute and make comparisons.	Disciplinary Knowledge Use logical reasoning to predict the outcome of a program. Explain that programming projects can have code and artwork. Decide how my project can be improved. Substantive Knowledge Describe a series of instructions as a sequence. Explain what happens when we change the order of instructions. Design an algorithm. Create and debug a program that I have written. Explain that a sequence of commands has a start. Explain that a sequence of commands has an outcome. Create a program using a given design. Change a design. Create a program using my own design.	Disciplinary Knowledge Recognise the uses and features of information technology. Recognise that choices are made when using information technology. Substantive Knowledge Identify information technology in the home. Identify information technology beyond school. Explain how information technology helps us. Show how to use information technology safely. Identify the uses of information technology in the school.	→Algorithm, debug, command, repeat, input, output, event, collision detection, timer, actions →Spreadsheet, database, block graph, clip art, edit, search, data, volume, upload, digital content →Search, webpage, search engine. email

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Year 3	Disciplinary Knowledge To recognise how text and images convey information. To consider how different layouts can suit different purposes. Substantive Knowledge To choose appropriate page settings. To identify the object attributes needed to collect relevant data. To explain why it is helpful for a database to be well structured.	Disciplinary Knowledge Explain that animation is a sequence of drawings or photographs. Relate animated movement with a sequence of images. Identify the need to work consistently and carefully. Evaluate the impact of adding other media to an animation. To consider the benefits of desktop publishing. Substantive Knowledge Plan an animation. Review and improve an animation. To recognise how text and layout can be edited. To add content to a desktop publishing publication. To create questions with yes/no answers. To create a branching database. To identify objects using a branching database. To compare information shown in a pictogram and a branching database.	Disciplinary Knowledge To explore a new programming environment. To adapt a program to new context. To use logical reasoning to explain how some simple algorithms work and to detect errors Substantive Knowledge To identify that commands have an outcome. To explain that a program has a start. To recognise that a sequences of commands can have an order. To change the appearance of my project. To create a project from a task description. To explain how a sprite moves in an existing project. To create a program to move a sprite in four directions. To develop my program by adding features. To identify and fix bugs in a program. To design and create a maze-based challenge.	Disciplinary Knowledge Recognise how digital devices can change the way we work. Substantive Knowledge Explain how digital devices function. Identify input and output devices. Explain how a computer network can be used to share information. Explore how digital devices can be connected. Recognise the physical components of a network.	→Object, action, output, control, event, commands, if statements, variables, timer →More than, less than, solutions, sums, spin tool, row, column, typing, database, branching database, simulation, graph, typing, address book, attachment, cc, files, simulations, fields →Passwords, safe, spoof, web page, concept map
Year 4	Disciplinary Knowledge To evaluate how changes can improve an image. Substantive Knowledge To show that different types of audio can be combined and played together. To describe how images can be changed for different uses. To use collected data to answer questions.	Disciplinary Knowledge To evaluate editing choices made. To make good choices when selecting different tools. To explain that data gathered over time can be used to answer questions. Substantive Knowledge To identify that sound can be digitally recorded. To use a digital device to record sound. To explain that audio can be changed through editing. To explain that digital images can be changed. To change the composition of an image. To recognise that not all images are real. To use a digital device to collect data automatically. To explain that a data logger collects 'data points' from sensors over time. To use data collected over a long duration to find information.	Disciplinary Knowledge To identify that accuracy in programming is important. Substantive Knowledge To create program in a text-based language. To explain what 'repeat' means. To modify a count-controlled loop to produce a given outcome. To decompose a program into parts. To create a program that uses count-controlled loops. To develop the use of count-controlled loops in a different programming environment Explain that in programming there are infinite loops and count-controlled loops. Develop a design that includes two or more loops which run at the same time. To modify an infinite loop in a given program. To design a project that includes repetition.	Disciplinary Knowledge To recognise how the content of the WWW is created by people. To evaluate the consequences of unreliable content. To use technology safely, respectfully and responsibly. Substantive Knowledge To describe how networks physically connect to other networks. To recognise how networked devices make up the internet. To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web. To explain that a digital recording is stored as a file. To recognise acceptable/unacceptable behaviour.	→If, else statements, variable, repetition, input, debug, character, timer, algorithm, Logo, instructions →Wizard, formula, cells, formatting, line graph, spreadsheet, budgeting, animation, spin button, actions, data, currency format, mind-map, audience , onion skinning, stop motion, flick book, backgrounds →Online safety, desktop, presentation, credibility
Year 5	Disciplinary Knowledge To recognise the features of an effective video. To consider the impact of the choices made when making and sharing video. Substantive Knowledge To recognise video as moving pictures, which can include audio and visual media. To capture video using a digital device To identify that video can be improved through reshooting and editing.	Disciplinary Knowledge To identify that drawing tools can be used to produce different outcomes. To compare paper and computer-based databases. To outline how grouping and then sorting data allows us to answer questions. To apply my knowledge of a database to ask and answer real-world questions. Substantive Knowledge To create a vector drawing by combining shapes. To use tools to achieve a desired effect. To recognise that vector drawings consist of layers. To group objects to make them easier to work with. To evaluate my vector drawing. To identify digital devices that can record video. To use a form to record information. To explain that tools can be used to select specific data. To explain that computer programs can be used to compare data visually.	Disciplinary Knowledge To evaluate my program. Substantive Knowledge To control a simple circuit connected to a computer. To write a program that includes count-controlled loops. To explain that a loop can stop when a condition is met, e.g. number of times. To conclude that a loop can be used to repeatedly check whether a condition has been met. To design a physical project that includes selection. To create a controllable system that includes selection. To explain how selection is used in computer programs. To relate that a conditional statement connects a condition to an outcome. To explain how selection directs the flow of a program. To design a program which uses selection. To create a program which uses selection.	Disciplinary Knowledge To recognise the role of computer systems in our lives. To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together. To evaluate different ways of working together online. Substantive Knowledge To explain that computers can be connected together to form systems. To contribute to a shared project online.	→Object, action, output, timer, score pad, variables, if statements, else statements, timer, score pad, loops, timer →How many, convert, measurements, formulae, advanced mode, perimeter, area, database, records, field, calculations, database, search, database field, →Concept maps, stage, nodes and connections, collaborate →Internet safety, Childnet, SMART CREW, personal information, comic strip

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Year 6	Disciplinary Knowledge To recognise how we communicate using technology. To evaluate different methods of online communication. Substantive Knowledge To identify questions which can be answered using data.	Disciplinary Knowledge To compare working digitally with 2D and 3D graphics. To choose suitable ways to present data. To select, use and combine a variety of software on a range for digital devices to design and create a range of programs, systems and content that accomplish given goals. Substantive Knowledge To use a computer to create and manipulate three-dimensional (3D) digital objects. To construct a digital 3D model of a physical object. To identify that physical objects can be broken down into a collection of 3D shapes. To design a digital model by combining 3D objects. To develop and improve a digital 3D model. To explain that objects can be described using data. To explain that formulas can be used to produce calculated data. To apply formulas to data, including duplicating. To create a spreadsheet to plan an event.	Disciplinary Knowledge To choose how to improve a game by using variables. To design a project that builds on a given example. To use my design to create a project. To evaluate my project. Substantive Knowledge To define a variable as something that is changeable. To explain why a variable is used in a program. To create a program to run on a controllable device. To explain that selection can control the flow of a program. To update a variable with a user input. To use a conditional statement to compare a variable to a value. To design a project that uses inputs and outputs on a controllable device. To develop a program to use inputs and outputs on a controllable device.	Disciplinary Knowledge To review an existing website and consider its structure. Substantive Knowledge To identify how to use a search engine To describe how search engines select results. To explain how search engines are ranked. To recognise why the order of results is important, and to whom. To plan the features of a web page. To consider the ownership and use of images (copy write) To recognise the need to preview pages. To outline the need for a navigation path. To recognise the implications of linking to content owned by other people. To identify a range of ways to report concerns about content and contact.	→Tab, external websites, code, test, debug, two-way selection →Shortcuts, copy, paste, count tool, problem solve, formula wizard, formulae, actions, blog, quiz, audience →Internet, World Wide Web, cyberbullying, blogging, LAN, WAN

Computing Non Negotiables		
1st Unit must be Computing Systems and Networks	Programming Units must be taught in order	2 lessons of Natterhub must be taught per term.

Nursery					
- Learn to operate simple equipment e.g. can navigate a touch-capable technology with support. - Learn to show an interest in technological toys with knobs or pulleys, real objects such as cameras and touchscreen devices such as mobile phones and tablets. - Learn to show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images - I know that information can be relayed through signs and symbols in various forms (e.g. printed materials, digital screens and environmental print) - Learn to begin to navigate apps and websites on digital media using drop down menus to select website and icons to select apps					
Reception					
-Learn to complete a simple programme on an electronic device (ipad or whiteboard) -Learn to draw a picture on a screen -Learn to use the internet with adult supervision to find and retrieve information of interest. -Learn to enjoy an increasing range of print and digital books, both fiction and non-fiction -Learn to show that information can be retrieved from books, computers and mobile digital devices -Learn to use an oven safety when cooking with an adults (explaining the needs for safety)					
Autumn Working small world equipment eg microwave etc. Seesaw – home learning		Spring Class whiteboard for individual use Seesaw – home learning		Summer Google maps – local area Ipads Seesaw – home learning	
Year 1					
Topic 1	Key Discipline: Systems and Networks - Technology Around Us	Key Vocabulary: technology, computer, mouse/trackpad, keyboard, screen, click, drag, draw, double-click, input device, shift, space bar, capital letter, full stop, safely, responsibly			
L1: Learn technology as something that helps us. Learn to	L2: Learn to name the main parts of a computer. Learn to switch on	L3: Learn to use a mouse to open a program. Learn to click	L4: Learn to tell you that writing on a computer is called	L5: Learn to open my work from a file. Learn to use the arrow	L6: Learn to identify rules to keep us safe and healthy when

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locate examples of technology in the classroom. Learn how these technology examples help us.	and log into a computer. Learn to use a mouse to click and drag.	and drag to make objects on a screen. Learn to use a mouse to create a picture.	typing. Learn to type my name on a computer. Learn to save my work to a file.	keys to move the cursor. Learn to delete letters.	we are using technology in and beyond the home. Learn to give examples of some of these rules. Learn to discuss how we benefit from these rules.
Topic 2	Key Discipline: Creating Media – Digital Painting	Key Vocabulary: paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, brush style, brush size, Pictures, painting, computers, like, prefer, dislike			
L1: Learn to make marks on a screen and explain which tools I used. Learn to draw lines on a screen and explain which tools I used. Learn to use the paint tools to draw a picture.	L2: Learn to make marks with the square and line tools. Learn to use the shape and line tools effectively. Learn to use the shape and line tools to recreate the work of an artist.	L3: Learn to choose appropriate shapes. Learn to make appropriate colour choices. Learn to create a picture in the style of an artist.	L4: Learn that that different paint tools do different jobs. Learn to choose appropriate paint tools and colours to recreate the work of an artist. Learn to say which tools were helpful and why.	L5: Learn to make dots of colour on the page. Learn to change the colour and brush sizes. Learn to use dots of colour to create a picture in the style of an artist on my own.	L6: Learn that pictures can be made in lots of different ways. Learn to spot the differences between painting on a computer and on paper. Learn to say whether I prefer painting using a computer or using paper.
Natterhub Autumn Learn why we need rules around screen time. Learn the function of avatars. Learn ways that some people can be unkind online. Learn about devices that use the internet and use them to find information.					
Topic 3	Key Discipline: Programming – Moving a Robot	Key Vocabulary: forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route			
L1: Learn to predict the outcome of a command on a device. Learn to match a command to an outcome. Learn to run a command on a device.	L2: Learn to follow an instruction. Learn to recall words that can be acted out. Learn to give directions.	L3: Learn to compare forwards and backwards movements. Learn to start a sequence from the same place. Learn to predict the outcome of a sequence involving forwards and backwards commands.	L4: Learn to compare left and right turns. Learn to experiment with turn and move commands to move a robot. Learn to predict the outcome of a sequence involving up to four commands.	L5: Learn what my program should do. Learn to choose the order of commands in a sequence. Learn to debug my program.	L6: Learn to identify several possible solutions. Learn to plan two programs. Learn to use two different programs to get to the same place.
Topic 4	Key Discipline: Data and Information – Grouping Data	Key Vocabulary: object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, the same			
L1: Learn to describe objects using labels. Learn to match objects to groups. Learn to identify the label for a group of objects.	L2: Learn to count objects. Learn to group objects. Learn to count a group of objects.	L3: Learn to describe an object. Learn to describe a property of an object. Learn to find objects with similar properties.	L4: Learn to group similar objects. Learn to group objects in more than one way. Learn to count how many objects share a property.	L5: Learn to choose how to group objects. Learn to describe groups of objects. Learn to record how many objects are in a group.	L6: Learn to decide how to group objects to answer a question. Learn to compare groups of objects. Learn to record and share what I have found.
Natterhub Spring Learn that we have ownership of the work we create. Learn what an online profile is. Learn to be aware of information that should or shouldn't be shared online. Learn what makes someone good or bad.					
Topic 5	Key Discipline: Creating Media – Digital Writing	Key Vocabulary: word processor, keyboard, keys, letters, Microsoft Word, Google Docs, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, cursor, select, font, undo			
L1: Learn to open a word processor. Learn to recognise keys on a keyboard. Learn to identify and find keys on a keyboard.	L2: Learn to enter text into a computer. Learn to use letter, number, and space keys. Learn to use backspace to remove text.	L3: Learn to type capital letters. Learn what the keys that I have learnt about already do. Learn to identify the toolbar and use bold, italic, and underline.	L4: Learn to select a word by double-clicking. Learn to select all of the text by clicking and dragging. Learn to change the font.	L5: Learn to say what tool I used to change the text. Learn to decide if my changes have improved my writing. Learn to use 'undo' to remove changes.	L6: Learn to write a message on a computer and on paper. Learn to compare using a computer with using a pencil and paper. Learn to say which method I like best.
Topic 6	Key Discipline: Programming – Intro to Animation	Key Vocabulary: ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start block, run, background, delete, reset, algorithm, predict, effect, change, value, instructions, sprite, program,			
L1: Learn to find the commands to move a sprite. Learn to use commands to move a sprite.	L2: Learn to use more than one block by joining them together. Learn to use a Start block in a	L3: Learn to find blocks that have numbers. Learn to change	L4: Learn to show that a project can include more than one sprite. Learn to delete a	L5: Learn to choose appropriate artwork for my project. Learn to decide how each sprite will	L6: Learn to choose appropriate artwork for my project. Learn to decide how each sprite will

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Learn to compare different programming tools.	program. Learn to run my program.	the value. Learn to say what happens when I change a value.	sprite. Learn to add blocks to each of my sprites.	move. Learn to create an algorithm for each sprite.	move. Learn to create an algorithm for each sprite.
Natterhub Summer Learn when it is a good time to use screens. Learn that emojis can be effective way to communicate online. Learn how being unkind to someone can make them feel. Learn how to use search engines efficiently and safely.					
Year 2					
Topic 1	Key Discipline: Systems and Networks – IT Around Us	Key Vocabulary: information technology (IT), computer, barcode, scan, scanner			
L1: Learn to identify examples of computers. Learn to describe some uses of computers. Learn to identify that a computer is a part of IT.	L2: Learn to identify examples of IT. Learn to sort school IT by what it's used for. Learn to identify that some IT can be used in more than one way.	L3: Learn to find examples of information technology. Learn to sort IT by where it is found. Learn to talk about uses of information technology.	L4: Learn to recognise common types of technology, Learn to demonstrate how IT devices work together. Learn to say why we use IT.	L5: Learn to list different uses of information technology, Learn to talk about different rules for using IT. Learn to say how rules can help keep me safe.	L6: Learn to identify the choices that I make when using IT. Learn to use IT for different types of activities. Learn the need to use IT in different ways.
Topic 2	Key Discipline: Creating Media – Digital Photography	Key Vocabulary: device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, lighting			
L1: Learn to recognise what devices can be used to take photographs. Learn to talk about how to take a photograph. Learn what I did to capture a digital photo.	L2: Learn the process of taking a good photograph. Learn to take photos in both landscape and portrait format. Learn why a photo looks better in portrait or landscape format.	L3: Learn to identify what is wrong with a photograph. Learn to discuss how to take a good photograph. Learn to improve a photograph by retaking it.	L4: Learn to explore the effect that light has on a photo. Learn to experiment with different light sources. Learn why a picture may be unclear.	L5: Learn to recognise that images can be changed. Learn to use a tool to achieve a desired effect. Learn my choices.	L6: Learn to apply a range of photography skills to capture a photo. Learn to recognise which photos have been changed. Learn to identify which photos are real and which have been changed.
Natterhub Autumn Learn why online and offline time need to be balanced. Learn the effect our words and actions can have on others. Learn to use keywords in search engines and demonstrate how to navigate a simple webpage to retrieve information.					
Topic 3	Key Discipline: Creating Media – Digital Music	Key Vocabulary: music, pattern, pitch, tempo, rhythm, notes, open, edit			
L1: Learn to identify simple differences in pieces of music. Learn to describe music using adjectives. Learn to say what I do and don't like about a piece of music.	L2: Learn to create a rhythm pattern. Learn to play an instrument following a rhythm pattern. Learn that music is created and played by humans.	L3: Learn to connect images with sounds. Learn to use a computer to experiment with pitch. Learn to relate an idea to a piece of music.	L4: Learn to identify that music is a sequence of notes. Learn how my music can be played in different ways. Learn to refine my musical pattern on a computer.	L5: Learn to create a rhythm which represents an animal I've chosen. Learn to create my animal's rhythm on a computer. Learn to add a sequence of notes to my rhythm.	L6: Learn to review my work. Learn how I changed my work. Learn to listen to music and describe how it makes me feel.
Topic 4	Key Discipline: Data and Information: Pictograms	Key Vocabulary: more than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, compare, more than, less than, objects, count, more common, least common, attribute, group, same, different, most/least, conclusion, sharing, data			
L1: Learn to record data in a tally chart. Learn to represent a tally count as a total. Learn to compare totals in a tally chart.	L2: Learn to enter data onto a computer. Learn to use a computer to view data in a different format. Learn to use pictograms to answer simple questions about objects.	L3: Learn to organise data in a tally chart. Learn to use a tally chart to create a pictogram. Learn what the pictogram shows.	L4: Learn to tally objects using a common attribute. Learn to create a pictogram to arrange objects by an attribute. Learn to answer more than/less than, most/least questions about an attribute.	L5: Learn to choose a suitable attribute to compare people. Learn to collect the data I need. Learn to create a pictogram and draw conclusions from it.	L6: Learn to use a computer program to present information is different ways. Learn to share what I have found out using a computer. Learn to give simple examples of why information should not be shared.
Natterhub Spring Learn that content on the internet may belong to other people and why it belongs to them. Learn to explain how information put online about me can last for a long time. Learn to describe and explain some rules for keeping information private.					
Topic 5	Key Discipline: Programming – Robot Algorithms	Key Vocabulary: instruction, sequence, clear, unambiguous, algorithm, program, order, algorithm, prediction, artwork, design, route, mat, debugging, decomposition			
L1: Learn to follow instructions given by someone else. Learn to	L2: Learn to use the same instructions to create different	L3: Learn to follow a sequence. Learn to predict the outcome of	L4: Learn the choices that I made for my mat design.	L5: Learn what my algorithm should achieve. Learn to create	L6: Learn to test and debug each part of the program. Learn to

choose a series of words that can be acted out as a sequence. Learn to give clear instructions.	algorithms. Learn to use an algorithm to program a sequence on a floor robot. Learn to show the difference in outcomes between two sequences that consist of the same instructions.	a sequence. Learn to compare my prediction to the program outcome.	Learn to identify different routes around my mat. Learn to test my mat to make sure that it is usable.	an algorithm to meet my goal. Learn to use my algorithm to create a program.	plan algorithms for different parts of a task. Learn to put together the different parts of my program.
Topic 6	Key Discipline: Programming - Quizzes	Key Vocabulary: sequence, command, program, run, start, outcome, predict, blocks, sprite, blocks, design, project, modify, change, match, features, evaluate			
L1: Learn to identify the start of a sequence. Learn to identify that a program needs to be started. Learn to show how to run my program.	L2: Learn to predict the outcome of a sequence of commands. Learn to match two sequences with the same outcome. Learn to change the outcome of a sequence of commands.	L3: Learn to work out the actions of a sprite in an algorithm. Learn to decide which blocks to use to meet the design. Learn to build the sequences of blocks I need.	L4: Learn to choose backgrounds for the design. Learn to choose characters for the design. Learn to create a program based on the new design.	L5: Learn to choose the images for my own design. Learn to create an algorithm. Learn to build sequences of blocks to match my design.	L6: Learn to compare my project to my design. Learn to improve my project by adding features. Learn to debug my program.
Natterhub Summer Learn to understand who is responsible for bullying behaviour. Learn that some information we find online may not be true.					
Year 3					
Topic 1	Key Discipline: Systems and Networks – Connecting Computers	Key Vocabulary: digital device, input, process, output, program, digital, non-digital, connection, network, network switch, server, wireless access point, network cables, network sockets			
L1: Learn that digital devices accept inputs. Learn that digital devices produce outputs. Learn to follow a process.	L2: Learn to classify input and output devices. Learn to describe a simple process. Learn to design a digital device.	L3: Learn how I use digital devices for different activities. Learn to recognise similarities between using digital devices and using non-digital tools. Learn to suggest differences between using digital devices and using non-digital tools.	L4: Learn to recognise different connections. Learn how messages are passed through multiple connections. Learn to discuss why we need a network switch.	L5: Learn to recognise that a computer network is made up of a number of devices. Learn to demonstrate how information can be passed between devices. Learn the role of a switch, server, and wireless access point in a network.	L6: Learn to identify how devices in a network are connected together. Learn to identify networked devices around me. Learn to identify the benefits of computer networks.
Topic 2	Key Discipline: Data and Information – Branching Databases	Key Vocabulary: questions, objects, groups, branching databases, answers, tree structure, attributes, testing, online database tool, efficiency, order, physical representation, structure,			
L1: Learn to investigate questions with yes/no answers Learn to make up a yes/no question about a collection of objects. Learn to create two groups of objects separated by one attribute.	L2: Learn to select an attribute to separate objects into groups Learn to create a group of objects within an existing group Learn to arrange objects into a tree structure.	L3: Learn to select objects to arrange in a branching database Learn to group objects using my own yes/no questions. Learn to test my branching database to see if it works.	L4: Learn to create yes/no questions using given attributes. Learn to compare two branching database structures. Learn that questions need to be ordered carefully to split objects into similarly sized groups.	L5: Learn to independently create questions to use in a branching database Learn to create questions that will enable objects to be uniquely identified. Learn to create a physical version of a branching database.	L6: Learn to create a branching database that reflects my plan Learn to work with a partner to test my identification tool Learn to suggest real-world uses for branching databases.
Natterhub Autumn Learn why a balance is needed when using screens. Learn the risks associated with meeting and talking to people that I don't know. Learn about cyberbullying and describe how our actions online affect others Learn that the internet can be used to buy and sell things.					
Topic 3	Key Discipline: Programming – Sequencing in Music	Key Vocabulary: Scratch, movement, sprite, code, implement, outcome, motion blocks, sequencing, project, design, sound, costume, backdrop, musical instrument, copied, test,			
L1: Learn to identify the objects in a Scratch project (sprites, backdrops). Learn that objects in Scratch have attributes (linked to). Learn to recognise that	L2: Learn to create a program following a design and understand that each sprite is controlled by the commands I choose. Learn to predict the coding blocks used to	L3: Learn to start a program in different ways. Learn to create a sequence of connected commands. Learn that the	L4: Learn what a sequence is. Learn to combine sound commands. Learn to order notes into a sequence.	L5: Learn to build a sequence of commands . Learn to decide the actions for each sprite in a program. Learn to make design choices for my artwork.	L6: Learn to identify and name the objects I will need for a project. Learn to relate a task description to a design. Learn to implement my algorithm as code.

commands in Scratch are represented as blocks.	move a sprite. Learn to match coding blocks to their actions.	objects in my project will respond exactly to the code.			
Topic 4	Key Discipline: Programming – Events and Actions	Key Vocabulary: characters, events, project, sprites, control, direction, up, down, left, right, background, code, duplicating, modifying, pen extension, debugging, errors,			
L1: Learn the relationship between an event and an action. Learn to choose which keys to use for actions and explain my choices. Learn to identify a way to improve a program.	L2: Learn to choose a character for my project. Learn to choose a suitable size for a character in a maze. Learn to program movement.	L3: Learn to use a programming extension. Learn to consider the real world when making design choices. Learn to choose blocks to set up my program.	L4: Learn to identify additional features (from a given set of blocks). Learn to choose suitable keys to turn on additional features. Learn to build more sequences of commands to make my design work.	L5: Learn to test a program against a given design. Learn to match a piece of code to an outcome. Learn to modify a program using a design.	L6: Learn to make design choices and justify them. Learn to implement my design. Learn to evaluate my project.
Natterhub Spring Learn that other people's work belongs to them. Learn that information about people is stored online. Learn what information to safely share with trusted people. Learn safe online sharing through the exploration of real life and online identities.					
Topic 5	Key Discipline: Creating Media - Animation	Key Vocabulary: animation, flip book, picture, stop-frame, storyboard, characters, settings, media			
Learn to draw a sequence of pictures. Learn to create an effective flip book—style animation. Learn how an animation/flip book works.	Learn to predict what an animation will look like. Learn why little changes are needed for each frame. Learn to create an effective stop-frame animation.	Learn to break down a story into settings, characters and events. Learn to describe an animation that is achievable on screen. Learn to create a storyboard.	L4: Learn to use onion skinning to help me make small changes between frames. Learn to review a sequence of frames to check my work. Learn to evaluate the quality of my animation.	Learn ways to make my animation better. Learn to evaluate another learner's animation. Learn to improve my animation based on feedback.	Learn to add other media to my animation. Learn why I added other media to my animation. Learn to evaluate my final film.
Topic 6	Key Discipline: Creating Media – Desktop Publishing	Key Vocabulary: text, image, message, emoji, font size, colour, return, backspace, shift, templates, orientation, placeholder, magazine template, copy, paste,			
Learn the difference between text and images. Learn to recognise that text and images can communicate messages clearly. Learn to identify the advantages and disadvantages of using text and images. Learn how to use emojis respectfully online.	Learn to change font style, size, and colours for a given purpose. Learn to edit text. Learn that text can be changed to communicate more clearly.	L3: Learn what 'page orientation' means. Learn to recognise placeholders and say why they are important. Learn to create a template for a particular purpose.	L4: Learn to choose the best locations for my content. Learn to paste text and images to create a magazine cover. Learn to make changes to content after I've added it.	L5: Learn to identify different layouts. Learn to match a layout to a purpose. Learn to choose a suitable layout for a given purpose.	L6: Learn to identify the uses of desktop publishing in the real world. Learn to say why desktop publishing might be helpful.
Natterhub Summer Learn to recognise different situations that are bullying. Learn about the difference between belief, an opinion and a fact.					
Year 4					
Topic 1	Key Discipline: Systems and Networks: The Internet	Key Vocabulary: internet, network, router, network security, network switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts			
L1: Learn to describe the internet as a network of networks. Learn how information is shared across the internet. Learn why a network needs protecting.	L2: Learn to describe networked devices and how they connect. Learn that the internet is used to provide many services. Learn that the World Wide Web contains websites and web pages.	L3: Learn the types of media that can be shared on the WWW. Learn where websites are stored when uploaded to the WWW. Learn how to access websites on the WWW.	L4: Learn what media can be found on websites. Learn how to add content to the WWW. Learn that internet services can be used to create content online.	L5: Learn that websites and their content are created by people. Learn to suggest who owns the content on websites. Learn that there are rules to protect content.	L6: Learn that not everything on the World Wide Web is true. Learn why some information I find online may not be honest, accurate, or legal. Learn I need to think carefully before I share or reshare content.

Computing

Topic 2	Key Discipline: Programming – Repetition in Shapes	Key Vocabulary: program, turtle, commands, code snippet, algorithm, design, debug, Logo commands, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure			
L1: Learn to program a computer by typing commands. Learn the effect of changing a value of a command. Learn to create a code snippet for a given purpose.	L2: Learn to use a template to draw what I want my program to do. Learn to write an algorithm to produce a given outcome. Learn to test my algorithm in a text-based language.	L3: Learn to identify repetition in everyday tasks. Learn to identify patterns in a sequence. Learn to use a count-controlled loop to produce a given outcome.	L4: Learn to identify the effect of changing the number of times a task is repeated. Learn to predict the outcome of a program containing a count-controlled loop. Learn to choose which values to change in a loop.	L5: Learn to identify 'chunks' of actions in the real world. Learn to use a procedure in a program. Learn that a computer can repeatedly call a procedure.	L6: Learn to design a program that includes count-controlled loops. Learn to make use of my design to write a program. Learn to develop my program by debugging it.
Natterhub Autumn Learn how time spent on technology can affect other activities Learn how to communicate what I am doing online and explain why I have chosen to do so. Learn some online technologies where bullying might take place. Learn the difference between opinions, beliefs and facts.					
Topic 3	Key Discipline: Creating Media – Audio Editing	Key Vocabulary: audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, export, MP3, export, evaluate, feedback			
L1: Learn to identify the input and output devices used to record and play sound. Learn to use a computer to record audio. Learn that the person who records the sound can say who is allowed to use it.	L2: Learn to re-record my voice to improve my recording. Learn to inspect the soundwave view to know where to trim my recording. Learn to discuss what sounds can be added to a podcast.	L3: Learn how sounds can be combined to make a podcast more engaging. Learn to save my project so the different parts remain editable. Learn to plan appropriate content for a podcast.	L4: Learn to record content following my plan. Learn to review the quality of my recordings. Learn to improve my voice recordings.	L5: Learn to open my project to continue working on it. Learn to arrange multiple sounds to create the effect I want. Learn the difference between saving a project and exporting an audio file.	L6: Learn that digital recordings need to be exported to share them. Learn to discuss the features of a digital recording I like. Learn to suggest improvements to a digital recording.
Topic 4	Key Discipline: Data and Information: Data Logging	Key Vocabulary: data, table, layout, input device, sensor, data logger, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion			
L1: Learn to choose a data set to answer a given question. Learn to suggest questions that can be answered using a given data set. Learn to identify data that can be gathered over time.	L2: Learn what data can be collected using sensors. Learn to use data from a sensor to answer a given question. Learn to identify that data from sensors can be recorded.	L3: Learn to identify a suitable place to collect data. Learn to identify the intervals used to collect data. Learn to talk about the data that I have captured.	L4: Learn to view data at different levels of detail. Learn to sort data to find information. Learn that there are different ways to view data.	L5: Learn to propose a question that can be answered using logged data. Learn to plan how to collect data using a data logger. Learn to use a data logger to collect data.	L6: Learn to interpret data that has been collected using a data logger. Learn to draw conclusions from the data that I have collected. Learn the benefits of using a data logger.
Natterhub Spring Learn how to use technology to help us in different ways. Learn how others can find information about me by looking online. Learn how personal information can be used by others. Learn how online and offline identities are different.					
Topic 5	Key Discipline: Creating Media – Photo Editing	Key Vocabulary: image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, retouch, clone, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, clone, select, undo, font			
L1: Learn to improve an image by rotating it. Learn why I might crop an image. Learn to use photo editing software to crop an image.	L2: Learn that different colour effects make you think and feel different things. Learn to experiment with different colour effects. Learn why I chose certain colour effects.	L3: Learn to add to the composition of an image by cloning. Learn to identify how a photo edit can be improved. Learn to remove parts of an image using cloning.	L4: Learn to add to the composition of an image by cloning. Learn to identify how a photo edit can be improved. Learn to remove parts of an image using cloning.	L5: Learn to describe the image I want to create. Learn to choose suitable images for my project. Learn to create a project that is a combination of other images.	L6: Learn to review images against a given criteria. Learn to use feedback to guide making changes. Learn to combine text and my image to complete the project.
Topic 6	Key Discipline: Programming – Repetition in Games	Key Vocabulary: scratch, programming, sprite, blocks, code, loop, repeat, value, block, repeat, forever, infinite loop, count-controlled loop, costume, repetition, animate, event block, duplicate, modify, design, sprite, algorithm, duplicate, debug, refine, evaluate			
L1: Learn to list an everyday task as a set of instructions including repetition. Learn to predict the outcome of a snippet of code. Learn to modify a snippet of code to create a given outcome.	L2: Learn to modify loops to produce a given outcome. Learn to choose when to use a count-controlled and an infinite loop. Learn to recognise that some programming languages enable	L3: Learn to choose which action will be repeated for each object. Learn what the outcome of the repeated action should be. Learn to evaluate the	L4: Learn to identify which parts of a loop can be changed. Learn the effect of my changes. Learn to re-use existing code snippets on new sprites.	L5: Learn to evaluate the use of repetition in a project. Learn to select key parts of a given project to use in my own design. Learn to develop my own design	L6: Learn to refine the algorithm in my design. Learn to build a program that follows my design. Learn to evaluate the steps I followed when building my project.

	more than one process to be run at once.	effectiveness of the repeated sequences used in my program.		explaining what my project will do.	
Natterhub Summer Learn how to create a safe screen name. Learn the effect an online post can have. Learn that not all information online is factual.					
Year 5					
Topic 1	Key Discipline: Systems and Networks – Systems and Searching	Key Vocabulary: system, connection, digital, input, process, output, search, search engine, refine, index, crawler, bot, search engine, ordering, ranking, links, algorithm, search engine optimisation (SEO), content creator, selection			
L1: Learn that systems are built using a number of parts. Learn to describe the input, process, and output of a digital system. Learn that computer systems communicate with other devices.	L2: Learn to identify tasks that are managed by computer systems. Learn to identify the human elements of a computer system. Learn the benefits of a given computer system.	L3: Learn to make use of a web search to find specific information. Learn to refine my web search. Learn to compare results from different search engines.	L4: Learn why we need tools to find things online. Learn to recognise the role of web crawlers in creating an index. Learn to relate a search term to the search engine's index.	L5: Learn to order a list by rank. Learn that a search engine follows rules to rank results. Learn to give examples of criteria used by search engines to rank results.	L6: Learn to describe some of the ways that search results can be influenced. Learn to recognise some of the limitations of search engines. Learn how search engines make money.
Topic 2	Key Discipline: Creating Media – Intro to Vector Graphics	Key Vocabulary: vector, drawing tools, object, toolbar, move, resize, colour, rotate, duplicate/copy, zoom, select, align, resize, modify, layers, order, copy, paste, group, ungroup, object, reuse, reflection			
L1: Learn to recognise that vector drawings are made using shapes. Learn to experiment with the shape and line tools. Learn to discuss how vector drawings are different from paper-based drawings.	L2: Learn to identify the shapes used to make a vector drawing. Learn that each element added to a vector drawing is an object. Learn to move, resize, and rotate objects I have duplicated.	L3: Learn to use the zoom tool to help me add detail to my drawings. Learn how alignment grids and resize handles can be used to improve consistency. Learn to modify objects to create a new image.	L4: Learn to identify that each added object creates a new layer in the drawing. Learn to change the order of layers in a vector drawing. Learn to use layering to create an image.	L5: Learn to copy part of a drawing by duplicating several objects. Learn to recognise when I need to group and ungroup objects. Learn to reuse a group of objects to further develop my vector drawing.	L6: Learn to create a vector drawing for a specific purpose. Learn to reflect on the skills I have used and why I have used them. Learn to compare vector drawings to freehand paint program drawings.
Natterhub Autumn Learn about negative online behaviour and know what to do if I encounter it. Learn to recognise when someone is upset, hurt or angry online. Learn what makes an effective online searcher.					
Topic 3	Key Discipline: Programming – Selection in Physical Computing	Key Vocabulary: microcontroller, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, input, output, selection, condition, action, selection, debug			
L1: Learn to create a simple circuit and connect it to a microcontroller. Learn to program a microcontroller to make an LED switch on. Learn what an infinite loop does.	L2: Learn to connect more than one output component to a microcontroller. Learn to use a count-controlled loop to control outputs. Learn to design sequences that use count-controlled loops.	L3: Learn that a condition is either true or false. Learn to design a conditional loop. Learn to program a microcontroller to respond to an input.	L4: Learn that a condition being met can start an action. Learn to identify a condition and an action in my project. Learn to use selection (an 'if…then…' statement) to direct the flow of a program.	L5: Learn to identify a real-world example of a condition starting an action. Learn to describe what my project will do. Learn to create a detailed drawing of my project.	L6: Learn to write an algorithm that describes what my model will do. Learn to use selection to produce an intended outcome. Learn to test and debug my project.
Topic 4	Key Discipline: Data and Information – Flat-file Databases	Key Vocabulary: database, data, information, record, field, sort, order, group, graph, chart, axis, compare, filter, presentation			
L1: Learn to create a database using cards. Learn how information can be recorded. Learn to order, sort, and group my data cards.	L2: Learn what a field and a record is in a database. Learn to navigate a flat-file database to compare different views of information. Learn to choose which field to sort data by to answer a given question.	L3: Learn that data can be grouped using chosen values. Learn to group information using a database. Learn to combine grouping and sorting to answer specific questions.	L4: Learn to choose which field and value are required to answer a given question. Learn to outline how 'AND' and 'OR' can be used to refine data selection. Learn to choose multiple criteria to answer a given question.	L5: Learn to select an appropriate chart to visually compare data. Learn to refine a chart by selecting a particular filter. Learn the benefits of using a computer to create charts.	L6: Learn to ask questions that will need more than one field to answer. Learn to refine a search in a real-world context. Learn to present my findings to a group.
Natterhub Spring Learn how what I do online forms my online identity. Learn the internet is a valuable tool for learning new skills.					

Computing

Learn how information found online can be used to make judgements about individuals. Learn how apps or services may collect and share my private information.					
Topic 5	Key Discipline: Programming – Selection in Quizzes	Key Vocabulary: selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, task, design, input, program, condition, outcomes			
L1: Learn to recall how conditions are used in selection. Learn to identify conditions in a program. Learn to modify a condition in a program.	L2: Learn to use selection in an infinite loop to check a condition. Learn to identify the condition and outcomes in an 'if… then… else…' statement. Learn to create a program that uses selection to produce different outcomes.	L3: Learn that program flow can branch according to a condition. Learn to design the flow of a program that contains 'if… then… else…' Learn to show that a condition can direct program flow in one of two ways.	L4: Learn to outline a given task. Learn to use a design format to outline my project. Learn to identify the outcome of user input in an algorithm.	L5: Learn to implement my algorithm to create the first section of my program. Learn to test my program. Learn to share my program with others.	L6: Learn to identify ways the program could be improved. Learn to identify the setup code I need in my program. Learn to extend my program further.
Topic 6	Key Discipline: Creating Media – Video Editing	Key Vocabulary: video, audio, camera, talking head, panning, close up, microphone, lens, close up, mid range, long shot, moving subject, side by side, high angle, low angle, normal angle, static camera, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, trim, reorder, export, evaluate, share			
L1: Learn that video is a visual media format. Learn to identify features of videos. Learn to compare features in different videos.	L2: Learn to identify and find features on a digital video recording device. Learn to experiment with different camera angles. Learn to recognise camera angles in a video.	L3: Learn to suggest filming techniques for a given purpose. Learn to capture video using a range of filming techniques. Learn to review how effective my video is.	L4: Learn to outline the scenes of my video. Learn to decide which filming techniques I will use. Learn to create and save video content.	L5: Learn to store, retrieve, and export my recording to a computer. Learn how to improve a video by reshooting and editing. Learn to select the correct tools to make edits to my video.	L6: Learn to make edits to my video and improve the final outcome. Learn to recognise that my choices when making a video will impact the quality of the final outcome. Learn to evaluate my video and share my opinions.
Natterhub Summer Learn how to deal with the emotions associated with feeling left out. Learn how accurate and reliable the information we see online is.					
Year 6					
Topic 1	Key Discipline: Systems and Networks - Communication	Key Vocabulary: communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many			
L1: Learn to recognise that data is transferred using agreed methods. Learn that internet devices have addresses. Learn to describe how computers use addresses to access websites.	L2: Learn to identify and explain the main parts of a data packet. Learn that data is transferred over networks in packets. Learn that all data transferred over the internet is in packets.	L3: Learn to recognise how to access shared files stored online. Learn to send information over the internet in different ways. Learn that the internet allows different media to be shared.	L4: Learn to identify different ways of working together online. Learn to recognise that working together on the internet can be public or private. Learn how the internet enables effective collaboration.	L5: Learn the different ways in which people communicate. Learn to identify that there are a variety of ways to communicate over the internet. Learn to choose methods of communication to suit particular purposes.	L6: Learn to compare different methods of communicating on the internet. Learn to decide when I should and should not share information online. Learn that communication on the internet may not be private.
Topic 2	Key Discipline: Creating Media – 3D Modelling	Key Vocabulary: 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, placeholder, hollow, 3D shapes, choose, combine, construct, evaluate, modify			
L1: Learn to add 3D shapes to a project. Learn to view 3D shapes from different perspectives. Learn to move 3D shapes relative to one another.	L2: Learn to resize an object in three dimensions. Learn to lift/lower 3D objects. Learn to recolour a 3D object.	L3: Learn to rotate objects in three dimensions. Learn to duplicate 3D objects. Learn to group 3D objects.	L4: Learn to accurately size 3D objects. Learn to show that placeholders can create holes in 3D objects. Learn to combine a number of 3D objects.	L5: Learn to analyse a 3D model. Learn to choose objects to use in a 3D model. Learn to combine objects in a design.	L6: Learn to construct a 3D model based on a design. Learn how my 3D model could be improved. Learn to modify my 3D model to improve it.
Natterhub Autumn Learn the importance of respectful communication. Learn how to react to concerns online and what help is available if we have a concern. Learn how search engines work and how results are selected and ranked.					
Topic 3	Key Discipline: Data and Information – Intro to Spreadsheets	Key Vocabulary: data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, data, spreadsheet, input, output, propose, question, data set, organised, chart, evaluate, results, comparison, questions, software, tools, data			
L1: Learn to collect data. Learn to suggest how to structure my	L2: Learn what an item of data is. Learn to choose an appropriate	L3: Learn which data types can be used in calculations. Learn to	L4: Learn to calculate data using different operations.	L5: Learn to use a spreadsheet to answer questions. Learn why	L6: Learn to produce a chart. Learn to use a chart to show the

data. Learn to enter data into a spreadsheet.	format for a cell. Learn to apply an appropriate format to a cell.	construct a formula in a spreadsheet. Learn to identify that changing inputs changes outputs.	Learn to create a formula which includes a range of cells. Learn to apply a formula to multiple cells by duplicating it.	data should be organised. Learn to apply a formula to calculate the data I need to answer questions.	answer to questions. Learn to suggest when to use a table or chart.
Topic 4	Key Discipline: Creating Media – Web Page Creation	Key Vocabulary: website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, implication, external link, embed			
L1: Learn to explore a website. Learn to discuss the different types of media used on websites. Learn that websites are written in HTML.	L2: Learn to recognise the common features of a web page. Learn to suggest media to include on my page. Learn to draw a web page layout that suits my purpose.	L3: Learn to say why I should use copyright-free images. Learn to find copyright-free images. Learn to describe what is meant by the term 'fair use'.	L4: Learn to add content to my own web page. Learn to preview what my web page looks like. Learn to evaluate what my web page looks like on different devices and suggest/make edits.	L5: Learn what a navigation path is. Learn to describe why navigation paths are useful. Learn to make multiple web pages and link them using hyperlinks.	L6: Learn the implication of linking to content owned by others. Learn to create hyperlinks to link to other people's work. Learn to evaluate the user experience of a website.
Natterhub Spring Learn the positive differences technology makes throughout the world. Learn how to create a positive online reputation. Learn how to use, manage and remember passwords.					
Topic 5	Key Discipline: Programming – Variables in Games	Key Vocabulary: variable, change, name, value, set, design, event, algorithm, code, task, design, artwork, program, project, test, debug, improve, evaluate, share			
L1: Learn to identify examples of information that is variable. Learn that the way a variable changes can be defined. Learn to identify that variables can hold numbers or letters.	L2: Learn to identify a program variable as a placeholder in memory for a single value. Learn that a variable has a name and a value. Learn to recognise that the value of a variable can be changed.	L3: Learn to decide where in a program to change a variable. Learn to make use of an event in a program to set a variable. Learn to recognise that the value of a variable can be used by a program.	L4: Learn to choose the artwork for my project. Learn to create algorithms for my project. Learn my design choices.	L5: Learn to create the artwork for my project. Learn to choose a name that identifies the role of a variable. Learn to test the code that I have written.	L6: Learn to identify ways that my game could be improved. Learn to use variables to extend my game. Learn to share my game with others.
Topic 6	Key Discipline: Programming – Sensing Movement	Key Vocabulary: Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug			
L1: Learn to apply my knowledge of programming to a new environment. Learn to test my program on an emulator. Learn to transfer my program to a controllable device.	L2: Learn to identify examples of conditions in the real world. Learn to use a variable in an 'if, then, else' statement to select the flow of a program. Learn to determine the flow of a program using selection.	L3: Learn to use a condition to change a variable. Learn to experiment with different physical inputs. Learn that checking a variable doesn't change its value.	L4: Learn to use a comparison operator (e.g. <>=) in an if, then statement. Learn the importance of the order of conditions in else, if statements. Learn to modify a program to achieve a different outcome.	L5: Learn to decide what variables to include in a project. Learn to design the algorithm for my project. Learn to design the program flow for my project.	L6: Learn to create a program based on my design. Learn to test my program against my design. Learn to use a range of approaches to find and fix bugs.
Natterhub Summer Learn to identify and resist online temptations and pressures. Learn to recognise the problems that can come with sharing information online. Learn how to gather evidence of online bullying and what to do with the evidence. Learn how to be a discerning consumer of digital content.					