Knowledge	KS1	Y3	Y4	Y5	Y6
Coding	Children understand what an algorithm is. They can create a computer program using an algorithm. Children can create a program using a given design and understand the collision detection event. Children can understand that algorithms follow a sequence and that different objects have different properties. Children know what different events do in code and use the buttons correctly. Children can understand and debug simple programs.	Children understand what a flowchart is and how flowcharts are used in computer programming. They understand that there are different types of timers and select the right type for purpose. Children understand how to use the repeat command and the importance of nesting. They can design and create an interactive scene.	Children begin to understand selection in computing programming. They understand how an IF/ELSE statement works and how to use co-ordinates. Children explore the 'repeat until' command. They understand what a variable is and use a number variable when creating a playable game.	Children begin to simplify code and create a playable game. They can understand what a stimulation is and program a stimulation using 2Code. Children understand what decomposition and abstraction are in computer science. They can take a real-life situation, decompose it and think about the level of abstraction. Children can use friction in code and understand what a function is and how functions work in code. They understand what the different variables types are and how they are used differently. Children can create a sting and know what concatenation is and how it works.	Children design a playable game with a timer and score. They can plan and use selection and variables. Children understand how the launch command works and knows why the functions are useful. Children can use flowcharts to create and debug code. They can create simulation of a room in which devices can be controlled. Children understand how user input can be used in a program and understand how 2Code can be used to make a text-adventure game.
Online Safety	Children know how to refine searches using the search tool. They can use digital technology to share work and communicate and connect with others locally. They have some knowledge and understanding about sharing more globally on the internet. Children are introduced to Email as a communication tool and understand how we should talk to others in an online situation. Children can open and send simple online communications in a form of an email. They understand that information put online leaves a digital footprint or trail.	Children know what makes a safe password and they learn methods for keeping passwords safe. They understand how the internet can be used in effective communication and know how a blog can be used to communicate with a wider audience. Children can consider the truth of the content of websites and know about the meaning of age restrictions symbols on digital media and devices.	Children understand how they can protect themselves from online identity theft. They understand that information put online leaves a digital footprint or trail and that this can aid identity theft. Children begin to identify the risks and benefits of installing software including apps. They learn to understand that copying the work of others and presenting it as their own is called 'plagiarism' and considers the consequences of this. Children can identify appropriate behaviour when participating or contributing to collaborative online projects for learning. They identify the positive and negative influences of technology on health and the environment, knowing how to balance game and screen time with other parts of their lives.	Children gain a greater understanding of the impact that sharing digital content can have. They review sources of support when using technology and children's responsibilities to one another in their online behaviour. Children know how to maintain secure passwords. They understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. They are aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. Children begin to understand about reference sources in their work. Children can search the internet with a consideration for the reliability of the results of sources to check validity, understand the impact of incorrect information and ensure reliability through using different methods of communication.	Children can identify benefits and risks of mobile devices broadcasting the location of the user. Children can identify secure sites by looking for privacy seals of approval. They can identify the benefits and risks of giving personal information. Children review the meaning of a digital footprint and have a clear idea of appropriate online behaviour. Children begin to understand how information online can persist. Children understand the importance of balancing game and screen time with other parts of their lives. They can identify the positive and negative influences of technology on health and the environment.
Spreadsheets	Children can use 2Caluate image, lock, move, cell, speak and count tools to make a counting machine. They know how to copy and paste and use the totalling tools. They can use a spreadsheet for money calculations.	Children can use the symbols more than, less than and equal to, to compare values. They use 2Calculate to collect data and produce a variety of graphs. Children can use the	Children can format cells as currency, percentage, decimal to different decimal places or fraction. They can use the formula wizard to calculate averages. Children can combine tools to make spreadsheet activities such as	Children can use formulae within a spreadsheet to convert measurements of length and distance. They can use the count tool to answer hypotheses about common letters in use. Children can use a spreadsheet to model a real-life problem. They are able to	Children can use spreadsheets to investigate the probability of the results of throwing many dice. They can use a spreadsheet to calculate the discount and final prices in a sale. Children can use a spreadsheet to plan how to spend pocket money and the effect of saving money.

	They can collect data and produce a graph.	advanced mode of 2Calculate to learn about cell references.	timed times table tests. They use a spreadsheet to model a real-life situation. Children can add formula to a cell to automatically make a calculation in that cell.	use formulae to calculate area and perimeter of shapes. Children can create formulae that use text variables.	
Touch Typing		Children learn the terminology associated with typing. They understand the correct way to sit at the keyboard and learn how to use the home, top and bottom row keys. Children practice typing with the left and right hand.	Children learn how font size and style can affect the impact of a text. They use a simulated scenario to produce a news report.		
Email / blogging		Children learn about different methods of communication. They can open and respond to an email using an address book. Children how open an email safely and add an attachment.			Children can identify the purpose of writing a blog. They can identify the features of a successful blog. Children can plan the theme and content for a blog. Children can blog a post and consider the effect upon the audience of changing the visual properties of the blog. They understand how to contribute to an existing blog and know how and why blog posts are approved by the teacher.
Databases		Children can sort objects using just 'yes' or 'no' questions. They are able to complete a branching database using 2Question and then create their own simple database.		Children know how to search for information in a database. They can contribute to a class database and create their own database around a chosen topic.	
Game Creator / Simulations/ Logo / Text adventures	Presenting Ideas Children can explore how a story can be presented in different ways. They make a quiz about a story or class topic.	Simulations Children consider what simulations are and explore a simulation. They can analyse and evaluate a simulation.	Logo Children learn the structure of the coding language of Logo. They can input instructions in Logo. They can create letter shapes and use the repeat function. They can use and build procedures in Logo.	Game Creator Children can plan a game. They can design and create the game environment and the game quest. They are able to finish and share the game, evaluating the final game.	Text Adventures Children can find out what a text adventure is. They can use 2Connect to plan a story adventure. Children can make a story-based adventure using 2Create a Story.

Graphing		Children can enter data into a graph and answer questions. They can solve an investigation and present the results in graphic form.			
Animation			Children can discuss what makes a good animated film or cartoon. They learn how animations are created by hand and how they can be created on a computer. Children can learn about onion skinning in animation and add background and sounds. They are introduced to 'stop motion'.		
Modelling				Children can design a 3D model to fit a certain criterion understanding the effect of moving parts when designing. They can refine and print a model.	
Concept Maps				Children can understand the need for visual representation when generating and discussing complex ideas. They are able to use the idea of a concept map. Children can use the correct vocabulary when creating a concept map. They can create their own map and know how they can use the map to retell stories and information.	

Word Processing	Children can explore how a story can be presented in different ways. They can make a quiz about a story or class topic. Children make a fact-file on a non-fiction topic.	Children understand the uses of PowerPoint. They can create a page in a presentation. Children can add media, animations and timings to a presentation. They can begin to use the skills learn to design and create an engaging presentation.		Children know what a word processing tool is for. They can add and edit images to a word document. Children are able to know how to use word wrap with images and text and change the look of text within a document. They can use tables and consider page layout including heading and columns.	Children know what a spreadsheet looks like. They can navigate and enter data into cells. They introduce some basic data formulae in Excel for percentages, averages and max and min numbers. Children demonstrate how the use of Excel can save time and effort when performing calculations. Children can use a spreadsheet to model a real-life situation. They demonstrate how Excel can make complex data clear by manipulating the way it is presented. Children can create a variety of graphs in Excel.
Making Music	Children can make music digitally using 2Sequence. They can explore, edit and combine sounds. Children can edit and refine composed music. Children think about how music can be used to express feelings and create tunes which depict feelings. Children upload a sound from a bank of sounds into the sound section. Children can use these sounds to create tunes in 2Sequence.		Can identify and discuss the main elements of music. They understand and experiment with rhythm and tempo. Children create a melodic phrase. They can electronically compose a piece of music.		
Effective Searching / Networks	Can understand the terminology associated with searching. They gain a better understanding of searching on the Internet. Children can create a leaflet to help someone search for information on the internet.		Children can locate information on the search results page. They can use search effectively to find out information. Children can assess whether an information source is true or reliable.		Children can learn about what the internet consists of. They can find out what a LAN and a WAN are. Children find out how the Inernet is accessed in school. Children research and find out about the age of the internet.
Hardware Investigators			Children can understand the different parts that make up a computer. They can recall the different parts that make up a computer.		

Quizzing					Children can create a picture-based quiz for young children. They learn how to use the question types within 2Quiz. Children explore the grammar quizzes. They make a quiz that requires the player to search a database.
Binary	Children can learn about data handling tools that can give more information than pictograms. They can use yes/no questions to separate information. They can construct a binary tree to identify items. Children use 2Question to answer questions and use the search tool to find information.				Children can examine how whole numbers re used as the basis for representing all types of data in digital systems. Children recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). Children understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.