Computing Knowledge Document

		Nursery	Reception	Year 1	Year 2
Computer Science	Knowledge	• To know that objects can be controlled • To actively listen and follow instructions that has two parts. • To actively give instructions for someone to follow.	Beebots • To be able to describe a route that is in progress. • To be able to describe a route taken by another person while it is being enacted. • To be able to follow a route taken by another person after it has been enacted. • To plan routes for toy vehicles. • To follow a plan for a toy vehicle. • To use the buttons on a floor robot to make it move. • To purposefully use the buttons on a floor robot to make it move one step at a time. • To be able to input a program of 2 or 3 steps into a floor robot and then run the program to make it move. • To be able to interpret simple instructions to predict the outcome. • To be able to plan and input instructions for a floor robot one step at a time. • To be able to plan and input instructions for a floor robot more than one step at a time.	Unit 1.7 Coding • To understand what instructions are and predict what might happen when they are followed. • To use code to make a computer program. • To understand what object and actions are. • To understand what an event is. • To use an event to control an object. • To begin to understand how code executes when a program is run. • To understand what backgrounds and objects are. • To plan and make a computer program. Unit 1.2 Grouping and Sorting • To sort items using a range of criteria. • To sort items on the computer using the 'Grouping' activities in Purple Mash. Unit 1.5 Maze Explorers • To understand the functionality of the direction keys. • To understand how to create and debug a set of instructions (algorithm). • To use the additional direction keys as part of an algorithm. • To understand how to change and extend the algorithm list. • To create a longer algorithm for an activity. • To set challenges for peers. • To access peer challenges set by the teacher as 2Dos.	Unit 2.1 Coding • To understand what an algorithm is. • To create a computer program using an algorithm. • To create a program using a given design. • To understand the collision detection event. • To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence. • To understand that different objects have different properties. • To understand what different events do in code. • To understand the function of buttons in a program. • To understand and debug simple programs.

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				Unit 1.4 Lego builders • To compare the effects of adhering strictly to instructions to completing tasks without complete instructions. • To follow and create simple instructions on the computer. • To consider how the order of instructions affects the result.	
	Key Vocabulary	Beebot, computer, move	Beebot, computer, Chromebook, route, forwards, backwards, sideways, right, left, turn,	Computer (Chromebook), action, algorithm, background, code, command, debug, event, execute input, instructions, object, output, properties, run, scale, scene, sound, when clicked Direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn Program	Action, algorithm, background, button, collision detection, debug/debugging, design mode, event, key pressed, nesting, object, predict, properties, run, scale, scene, sound, sequence, test, text, timer, when clicked
Information Technology	Knowledge	• To know what a mouse is. • To understand how to move a mouse. • To understand that not all devices are touchscreen. • To know what a keyboard is. • To recognise some letters. • To use technology to take a photo/video.	Mouse and Touchpad Skills • To know how to 'hold' a mouse. • To be able to move the mouse purposefully. • To be able to click the lefthand mouse button to perform an action • To be able to use click and drag to move objects purposefully. • To be able to use the scroll roller on a mouse. • To be able to use a laptop (Chromebook) touchpad. Keyboard Skills	Unit 1.3 Pictograms • To understand that data can be represented in picture format. • To contribute to a class pictogram. • To use a pictogram to record the results of an experiment. Unit 1.6 Animated Story Books • To introduce e-books and the 2Create a Story tool. • To add animation to a story. • To add sound to a story, including voice recording and music the children have composed. • To work on a more complex story, including adding backgrounds and copying and pasting pages. • To share e-books on a class display board.	Unit 2.3 Spreadsheets • To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. • To learn how to copy and paste in 2Calculate. • To use the totalling tools. • To use a spreadsheet for money calculations. • To use the 2Calculate equals tool to check calculations. • To use 2Calculate to collect data and produce a graph. Unit 2.4 Questioning • To learn about data handling tools that can give more information than pictograms. • To use yes/no questions to separate information. • To construct a binary tree to identify items.

| | | | • To be able to find the individual letters on the keyboard.
• To use the spacebar
• To be able to delete using the backspace key and the DELETE key.
• To be able to type both uppercase and lowercase letters using CAPS LOCK and Shift.
• To be able to type numbers.
• To be able to use the ENTER key.
• To be able to use the arrow keys.

Drawing Skills
• To be able to select colours.
• To be able to mark make purposefully on the screen.
• To be able to control the pencil width.
• To be able to choose tools to experiment with.
• To be able to use the undo button.
• To be able to erase parts of pictures.
• To be able to draw using a touch screen.
• To be able to draw using mouse control. | Unit 1.8 Spreadsheets
• To know what a spreadsheet program looks like.
• To locate 2Calculate in Purple Mash.
• To enter data into spreadsheet cells.
• To use 2Calculate image tools to add clipart to cells.
• To use 2Calculate control tools: lock, move cell, speak and count. | • To use 2Question (a binary tree database) to answer questions.
• To use a database to answer more complex search questions.
• To use the Search tool to find information.

Unit 2.6 Creating Pictures
• To learn the functions of the 2Paint a Picture tool.
• To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir).
• To recreate Pointillist art and look at the work of pointillist artists such as Seurat.
• To learn about the work of Piet Mondrian and recreate the style using the lines template.
• To learn about the work of William Morris and recreate the style using the patterns template.
• To explore surrealism and eCollage.

Unit 2.7 Making Music
• To make music digitally using 2Sequence.
• To explore, edit and combine sounds using 2Sequence.
• To edit and refine composed music.
• To think about how music can be used to express feelings and create tunes which depict feelings.
• To upload a sound from a bank of sounds into the Sounds section.
• To record and upload environmental sounds into Purple Mash.
• To use these sounds to create tunes in 2Sequence. |

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					Unit 2.8 Presenting Ideas • To explore how a story can be presented in different ways. • To make a quiz about a story or class topic. • To make a fact file on a non-fiction topic. • To make a presentation to the class
	Key Vocabulary	Mouse, keyboard	Mouse, scroll roller, click, select, keyboard, spacebar, delete key, Caps Lock key, shift key, enter key	Arrow keys, cell, lock tool, backspace key, clip art, move cell tool, cursor, count tool, rows, columns, delete key, speak tool, image toolbox, spreadsheet Pictogram, compare, data, collate Sort, criteria, Animation, e-book, font, file, sound effect, display board	Backspace key, cell, copy and paste, columns, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet Pictogram, question, data, collate, binary tree, avatar, database Impressionism, palette, pointillism, share, surrealism, template Bpm, composition, digitally, instrument, music, sound effects (SFX), soundtrack, tempo, volume Concept map, quiz, presentation, node, animated, non-fiction, narrative, audience
Digital Literacy	Knowledge	• To know that computers can help us • To know that technology is used in a range of places. • To be able to express my emotions (verbally or non-verbally).	Using Purple Mash with an individual login • To navigate to PM login page • To type in the username on individual login cards • To login in picture password by using a mouse of touchpad. Technology Around Us • To know the technology used in the home.	Unit 1.1 Online Safety • Annually take part in Safer Internet Day in February. Smartie Penguin on display near classroom computers. • To log in safely. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources. • To become familiar with the icons and types of resources available in the Topics section. • To start to add pictures and text to work.	Unit 2.2 Online Safety • Annually take part in Safer Internet Day in February. Smartie Penguin on display near classroom computers. • To know how to refine searches using the Search tool. • To use digital technology to share work on Purple Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. • To understand how we should talk to others in an online situation.

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| | | | • To be able to identify how technology is used outdoors.
• To be able to identify technology used in the wider world.

Safety and Privacy
• To be able to explain what it means to own digital content.
• To be able to explain what 'private' means when using technology.
• To be able to express how it feels to be uncomfortable with something.
• To be able to name 5 people who can help with negative feelings.
• To be able to think about how to show kindness to others.
• To begin to be aware of the impact of a lot of screen time. | • To explore the Tools and Games section of Purple Mash.
• To learn how to open, save and print.
• To understand the importance of logging out.

Unit 1.9 Technology Outside School
• To walk around the local community and find examples of where technology is used.
• To record examples of technology outside school. | • To open and send simple online communications in the form of email.
• To understand that information put online leaves a digital footprint or trail.
• To identify the steps that can be taken to keep personal data and hardware secure.

Unit 2.5 Effective Searching
• To understand the terminology associated with searching.
• To gain a better understanding of searching on the Internet.
• To create a leaflet to help someone search for information on the Internet. |
| | Key Vocabulary | Safe, emotions (happy, sad, scared) | Login, username, password, safe, private | Technology
Login, username, password, avatar, my work, topics, log out, save, notification, tools, personal information | Search, display board, internet, sharing, email, attachment, digital footprint
Search Engine |