St John's Church Of England Primary School
Computing Curriculum Progression

Purpose: A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

How learning starts in the early years						
Opportunities	**KS1**		**KS2**			
	Year 1	Year 2	Year3	Year 4	Year 5	Year 6
Breadth of Study	**Online Safety and Exploring Purple Mash** Use technology safely and respectfully **Grouping and Sorting** Use technology purposefully **Pictograms**	**Coding** Understand what algorithms are Create and debug simple programs Use logical reasoning **Online Safety** Use technology safely and respectfully	**Coding** Design, write and debug programs Use sequence, selection and repetition in programs Use logical reasoning **Online Safety** Use technology safely, respectfully and responsibly	**Coding** Design, write and debug programs Use sequence, selection and repetition Use logical reasoning Select, use and combine a variety of software **Online Safety**	**Coding** Design, write and debug programs Use sequence, selection and repetition Use logical reasoning Select, use and combine a variety of software **Online Safety**	**Coding** Design, write and debug programs. Use sequence, selection and repetition. Use logical reasoning. Select, use and combine a variety of software. **Online Safety**

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	Use technology purposefully **Lego Builders** Understand what algorithms are **Maze Explorers** Understand what algorithms are Create and debug simple programs Use logical reasoning to predict behaviour **Animated Story Books** Use technology purposefully	**Spreadsheets** Use technology purposefully **Questioning** Use technology purposefully **Effective Searching** Use technology purposefully Recognise common uses of information technology beyond school **Creating Pictures** Use technology purposefully	**Spreadsheets** **Touch-Typing** Select, use and combine a variety of software **Email** Understand computer networks Select, use and combine a variety of software Use technology safely, respectfully and responsibly **Branching Databases** Select, use and combine a variety of software	Understand computer networks Use technology safely, respectfully and responsibly **Spreadsheets** Select, use and combine a variety of software **Writing for Different Audiences** Select, use and combine a variety of software **Logo** Design, write and debug programs Use sequence, selection and repetition Use logical reasoning	Understand computer networks Use technology safely, respectfully and responsibly **Spreadsheets** Select, use and combine a variety of software **Databases** Select, use and combine a variety of software **Game Creator** Design, write and debug programs	Understand computer networks. Use search technologies effectively. Use technology safely, respectfully and responsibly. **Spreadsheets** Select, use and combine a variety of software. **Blogging** Understand computer networks. Select, use and combine a variety of software. Use technology safely, respectfully and responsibly.

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	Coding Understand what algorithms are Creat and debug simple programs Use logical reasoning to predict behaviour Use technology purposefully **Spreadsheets** Use technology purposefully **Technology Outside Of School** Recognise common uses of information technology beyond school	**Making Music** Use technology purposefully **Presenting Ideas** Use technology purposefully	**Simulations** Select, use and combine a variety of software **Graphing** Select, use and combine a variety of software	**Animation** Select, use and combine a variety of software **Effective Searching** Understand computer networks Use search technologies effectively **Hardware Investigators** Understand computer networks	Select, use and combine a variety of software **3D Modelling** Select, use and combine a variety of software **Concept Maps** Select, use and combine a variety of software Use search technologies effectively	**Text Adventures** Design, write and debug programs. Use sequence, selection and repetition. Use logical reasoning. Select, use and combine a variety of software. **Networks** Understand computer networks. **Quizzing** Select, use and combine a variety of software. **Understanding Binary** (optional)

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Knowledge and Understanding	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Online Safety and Exploring Purple Mash To login safely. To start to introduce to the children the idea of 'ownership' of their creative work. To know how to find saved work in the Online Work area and find teacher comments. To know how to search Purple Mash to find resources. To become familiar with the types of resources available in the Topics section. To become more familiar with the icons used in the resources in the Topic section. To start to add pictures and text to work. To explore the Tools section of Purple Mash and to learn about the common icons used in Purple Mash for Save, Print, Open, New. To explore the Games section on Purple Mash.	**Coding** To understand what an algorithm is. To create a computer program using simple algorithms. To compare the Turtle and Character objects. To use the button object. To understand how use the Repeat command. To understand how to use the Timer command. To know what debugging means. To understand the need to test and debug a program repeatedly. To debug simple programs. To create programs using different kinds of objects whose behaviours are limited to specific actions. To predict what the objects will do in other programs, based on their knowledge of what the object is capable of.	**Coding** To review coding vocabulary that relates to Object, Action, Output, Control and Event. To use 2Chart to represent a sequential program design. To use the design to write the code for the program. To design and write a program that simulates a physical system. To look at the grid that underlies the design and relate this to X and Y properties. To introduce selection in their programming by using the if command. To combine a timer in a program with selection. To understand what a variable is in programming. To use a variable to create a timer. To create a program with an object that repeats actions indefinitely. To use a timer to make characters repeat actions. To explore the use of the repeat command and how this differs from the timer. To know what debugging means.	**Coding** To review coding vocabulary. To use a sketch or storyboard to represent a program design and algorithm. To use the design to create a program. To introduce the If/else statement and use it in a program. To create a variable. To explore a flowchart design for a program with an if/else statement. To create a program which responds to the If/else command, using the value of the variable. To create a program with a character that repeats actions. To use the Repeat Until command to make characters repeat actions. To program a character to respond to user keyboard input. To make timers and counting machines using variables to print a new number to the screen every second. To explore how 2Code can be used to investigate control by creating a simulation. To know what decomposition and abstraction are in computer science. To take a real-life situation, decompose it and think about the level of abstraction. To design a decomposed feature of a real-life situation.	To review coding vocabulary. To use a sketch or storyboard to represent a program design and algorithm. e design to create a program. and write a program that simulates a physical system. To review the use of number variables in 2Code. e text variables. To create a playable, competitive game. To combine the use of variables, If/else statements and Repeats to achieve the desired effect in code. ode so that it can be adapted, personalised and improved. To explore the launch command and use buttons within a program that launch other programs or open websites. a program to inform others.	**Coding** To review good planning skills. To design programs using their choice of objects, attributing specific actions to each using their new programming knowledge. To use variables within a game to keep track of the properties of objects. To use functions and understand why they are useful in 2Code. To debug a program and organise the code into tabs. To organise code into functions and Call functions to eliminate surplus code in the program. To explore the options for getting text input from the user in 2Code. How to include interactivity in programming. To use flowcharts to test and debug a program. To create a simulation of a room in which devices can be controlled. To explore how 2Code can be used to make a text-based adventure game. **Online Safety** Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location. Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon. Identify the benefits and risks of giving personal information and device access to different software. To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. To have a clear idea of appropriate online behaviour and how this can protect

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	To understand the importance of logging out when they have finished. **Grouping and Sorting** To sort items using a range of criteria. To sort items on the computer using the 'Grouping' activities in Purple Mash. **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. **Lego Builders** To emphasise the importance of following instructions. To follow and create simple instructions on the computer. To consider how the order of instructions affects the result.	To discuss how logic helped them understand that they could only predict specific actions, as that is what the objects were limited to. To use all the coding knowledge, they have learned throughout their programming lessons to create a more complex program that tells a story. **Online Safety** To know how to refine searches using the Search tool. To know how to share work electronically using the display boards. 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 talk to others when they aren't there in front of us.	To understand the need to test and debug a program repeatedly. To debug simple programs. To understand the importance of saving periodically as part of the code development process. **Online Safety** To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. To understand how the Internet can be used to help us to communicate effectively. To understand how a blog can be used to help us communicate with a wider audience. For children to consider if that they read on websites is true? To look at some 'spoof' websites. To create a 'spoof' webpage. To think about why these sites might exist and how to check that the information is accurate. To learn about the meaning of age restrictions symbols on digital media and devices. To discuss why PEGI restrictions exist.	**Online Safety** To understand how children can protect themselves from online identity theft. Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. To Identify the risks and benefits of installing software including apps. To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. To identify appropriate behaviour when participating or contributing to collaborative online projects for learning. To select an appropriate website from search results and begin to consider if the content is reliable. To identify the positive and negative influences of technology on health and the environment. To understand the importance of balancing game and screen time with other parts of their lives. **Spreadsheets** Using the formula wizard in the advanced mode to add formulae and explore formatting cells. Timer and spin button. Line graphs. Using a spreadsheet for budgeting.	**On line Safety** To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology. review children's responsibility to one another in their online behaviour. To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. o be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. To learn about how to reference sources in their work To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact	themselves and others from possible online dangers, bullying and inappropriate behaviour. To begin to understand how information online can persist and give away details of those who share or modify it. To understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health. To identify the positive and negative influences of technology on health and the environment. **Spreadsheets** Exploring Probability. Use of spreadsheets in 'real life'. Creating a computational model. Use a spreadsheet to plan pocket money spending. Planning a school event. **Blogging** To identify the purpose of writing a blog. To identify the features of successful blog writing. To plan the theme and content for a blog. To understand how to write a blog. To consider the effect upon the audience of changing the visual properties of the blog. To understand the importance of regularly updating the content of a blog. To understand how to contribute to an existing blog. To understand how and why blog posts are approved by the teacher. To understand the importance of commenting on blogs. To peer-assess blogs against the agreed success criteria. **Text Adventures**

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	Maze Explorers To understand the functionality of the basic direction keys in Challenges 1 and 2. To be able to use the direction keys to complete the challenges successfully. To understand the functionality of the basic direction keys in Challenges 3 and 4. To understand how to create and debug a set of instructions (algorithm). To use the additional direction keys as part of their algorithm. To understand how to change and extend the algorithm list. To create a longer algorithm for an activity. To provide an opportunity for the children to set challenges for each other. To provide an opportunity for the teacher to set these new challenges as 2Dos for all the class to try.	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 begin to think critically about the information they leave online. To identify the steps that can be taken to keep personal data and hardware secure. **Spreadsheets** Reviewing prior use of spreadsheets Copying and Pasting Totalling tools Using a spreadsheet to add amounts Creating a table and block graph **Questioning** To show that the information provided on pictogram is of	To know where to turn for help if they see inappropriate content or have inappropriate contact from others. **Spreadsheets** To create pie charts and bar graphs. To use the 'more than', 'less than' and 'equals' tools. To introduce the Advanced Mode of 2Calculate and use coordinates. **Touch-Typing** To discuss the need for correct posture when typing. To introduce typing terminology. To practise and improve typing skills. To start to type words. To improve the speed and efficiency of typing skills. **Email** To think about the different methods of communication. To open and respond to an email. To write an email to someone, using an address book. To learn how to use email safely. To add an attachment to an email. To explore a simulated email scenario.	Exploring Place Value with a spreadsheet. **Writing for Different Audiences** To explore how font size and style can affect the impact of a text. To use a simulated scenario to produce a news report. To use a simulated scenario to write for a community campaign. **Logo** To learn the language of Logo. To input simple instructions on Logo. For the children to use Logo to create letters. To use the Repeat function in Logo to create shapes. To use the Build feature in Logo. **Animation** To discuss what makes a good animated film or cartoon and what their favourites are. To learn how animations are created by hand. To find out how 2Animate can be created in a similar way using the computer. To learn about onion skinning in animation. To add backgrounds and sounds to animations. To be introduced to stop motion animation. To share animation on the class display board and by blogging. **Effective Searching**	of incorrect information. reliability through using different methods of communication. **eets** ns of measurements. of the count tool. including the advanced mode. variables to perform calculations. preadsheet to plan an event. **s** ow to search for information on a database. ute to a class database. a database around a chosen topic. **ator** scene. the game environment. the game quest. nd share the game. te their and peer's games. **lling** oduced to 2Design and Make. the effect of moving points when designing. tand designing for a purpose.	To find out what a text adventure is. To plan a story adventure. To make a story-based adventure. To introduce map-based text adventures. To code a map-based text adventure. **Networks** To discover what the children know about the internet. To find out what a LAN and a WAN are. To find out how we access the internet in school. To research and find out about the age of the internet. To think about what the future might hold. **Quizzing** To make a picture quiz for young children. To learn how to use the question types within 2Quiz. To explore the grammar quizzes. To make a quiz that requires the player to search a database. Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents. **Understanding Binary** (optional) Examine how whole numbers are used as the basis for representing all types of data in digital systems through: Recognising 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). Understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics. Recognising that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11.

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	Animated Story Books To be introduced to e-books and to 2Create a Story. To continue a previously saved story. To add animation to a story. To add sound to a story including voice recording and music the children have created. To work on a more complex story including adding backgrounds and copying and pasting pages. To use additional features to enhance their stories. To share their e-books on a class display board. **Coding** To understand what coding means in computing. To create unambiguous instructions like those required by a computer. To build one- and two-step instructions using the printable code cards.	limited use beyond answering simple questions. To use YES or No questions to separate information. To construct a binary tree to separate different items. Use 2Question (a binary tree) to answer questions. To use a database to answer more complex search questions. To use the search tool to find information. **Effective Searching** To understand the terminology associated with searching. To gain a better understanding about searching on the Internet. To create a leaflet to help someone search for information on the Internet. **Creating Pictures** To be introduced to 2Paint A Picture.	**Branching Databases** To sort objects using just YES/NO questions. To complete a branching database using 2Question. To create a branching database of the children's choice. **Simulations** To look at what simulations are. To explore a simulation. To analyse and evaluate a simulation. **Graphing** To enter data into a graph and answer questions. To solve an investigation and present the results in graphic form.	To locate information on the search results page. To use search effectively to find out information. To assess whether an information source is true and reliable. **Hardware Investigators** To understand the different parts that make up a computer. To recall the different parts that make up a computer.	tand printing and making. **Maps** tand the need for visual representation when generating and discussing complex ideas. To understand and use the correct vocabulary when creating a concept map. a concept map. tand how a concept map can be used to retell stories and information. a collaborative concept map and present this to an audience.	Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary. Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary. Exploring how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms. Representing the state of an object in a game as active or inactive using the respective binary values of 1 or 0. Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.

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	To introduce 2Code. To use the 2Code program to create a simple program. To use Design Mode to add and change backgrounds and characters. They will use the Properties table to change the look of the objects. To use the Properties table to change the look of the objects. To design a scene for a program. To use code blocks to make the characters move automatically when the green Play button is clicked. To add an additional character who moves when clicked. To explore the When Key and When Swiped commands (on tablets if available). To use the Stop button to make characters stop when the background is clicked. To explore a method to code interactivity between objects. To use Collision Detection to make objects perform actions. To use the sound property.	To look at the impressionist style of art (Monet, Degas, Renoir). To recreate pointillist art and look at the work of pointillist artists such as Seurat. To look at the work of Piet Mondrian and recreate it using the Lines template. To look at the work of William Morris and recreate it using the Patterns template. To explore surrealism and eCollage **Making Music** To be introduced to making music digitally using 2Sequence. To explore, edit and combine sounds using 2Sequence. To add sounds to a tune they've already created to change it. 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.				

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	Spreadsheets Introduction to spreadsheets. Adding images to a spreadsheet and using the image toolbox. Using the 'speak' and 'count' tools in 2Calculate to count items. **Technology Outside Of School** To walk around the local community and find examples of where technology is used. To record examples of technology outside school.	To record their own sound and upload it into the Sounds section. To create their own tune using the sounds which they have added to the Sounds section. **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.				
Threshold Concepts	To code To communicate To collect	To code To communicate To collect	To code To communicate To collect	To code To communicate To collect	To code To communicate To collect	To code To communicate To collect

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	To connect	To connect	To connect	To connect	To connect	To connect
Conceptual Vocabulary	**Online Safety and Exploring Purple Mash** log in, username, password, avatar, my work, log out, save, notification, topics, tools **Grouping and Sorting** sort, criteria **Pictograms** pictogram, data, collate **Lego Builders** instruction, algorithm, computer, program, debug **Maze Explorers** direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn, debug, instruction, algorithm **Animated Story Books**	**Coding** action, algorithm, bug, character, code block, code design, command, debug, debugging, design mode, input, object, properties, repeat, scale, timer, when clicked, when key **Online Safety** search, displayboard, internet, sharing, email, attachment, digital footprint **Spreadsheets** backspace key, copy and paste, columns, cells, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet **Questioning** pictogram, question, data, collate, binary tree, avatar, database	**Coding** action, algorithm, bug, code block, code design, command, control, debug, debugging, design mode, event, if, input, output, object, properties, repeat, computer simulation, selection, timer, variable **Online Safety** password, internet, blog, concept map, username, website, webpage, spoof website, PEGI rating **Spreadsheets** < > =, advance mode, copy and paste, columns, cells, delete key, equals tool, move cell tool, rows, spin tool, spreadsheet **Touch Typing** posture, top row keys, home row keys, bottom row keys, space bar	**Coding** action, alert, algorithm, bug, code design, command, control, debug, debugging, design mode, event, get input, if, if/else, input, output, object, repeat, selection, simulation, timer, variable **Online Safety** computer virus, cookies, copyright, digital footprint, email, identify theft, malware, phishing, plagiarism, spam **Spreadsheets** average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer **Writing for Different Audiences** font, bold, italic, underline	**Coding** action, alert, algorithm, bug, code design, command, control, debug, debugging, design mode, event, get input, if, if/else, input, output, object, repeat, sequence, selection, simulation, timer, variable **Online Safety** online safety, smart rules, password, reputable, encryption, identify theft, shared image, plagiarism, citations, reference, bibliography **Spreadsheets** average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer **Databases** avatar, binary tree, branching database, charts, collaborative, data, database, find, record, sort,	**Coding** action, alert, algorithm, bug, code design, command, control, debug, debugging, event, function, get input, if, if/else, input, output, object, repeat, sequence, selection, simulation, tabs, timer, variable **Online Safety** digital footprint, password, PEGI rating, phishing, screen time, spoof website **Spreadsheets** average, advance mode, copy and paste, columns, cells, charts, count (how many) tool, dice, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer **Blogging** audience, blog, blog page, blog post, collaborative, icon

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	animation, e-book, font, file, sound effect, display board **Coding** action, background, button, character, code block, code design, coder, coding, collision detection, command, design mode, input, object, pictogram, properties, scale, stop command, sound, when clocked, when key **Spreadsheets** arrow keys, backspace key, cursor, columns, cells, clipart, count tool, delete key, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet **Technology Outside Of School** Technology	**Effective Searching** internet, search, search engine **Creating Pictures** impressionism, palette, pointillism, share, surrealism, template **Making Music** bpm, composition, digitally, instrument, music, sound effects, sfx, soundtrack, tempo, volume **Presenting Ideas** concept map, mind map, node, animated, quiz, non-fiction, presentation, narrative, audience	**Email** communication, email, compose, send, report to the teacher, attachment, address book, save to draft, password, CC, formatting **Branching Databases** branching database, data, database, question **Simulations** simulation **Graphing** graph, field, data, bar chart, block graph, line graph	**Logo** LOGO, BK, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD **Animation** animation, flipbook, frame, onion skinning, background, play, sound, stop motion, video clip **Effective Searching** Easter egg, internet, internet browser, search, search engine, spoof website, website **Hardware Investigators** motherboard, CPU, RAM, graphics card, network card, monitor, speakers, keyboard and mouse	group and arrange, statistics and reports, table **Game Creator** animation, computer game, customise, evaluation, image, instructions, interactive, screenshot, texture, perspective, playability **3D Modelling** CAD – computer aided design, modelling, 3D, viewpoint, polygon, 2D, net, 3D printing, points, template **Concept Maps** audience, collaboratively, concept, concept map, connection, idea, node, thought, visual	**Text Adventures** text-based adventure. concept map, debug, sprite, function **Networks** Internet, world wide web, network, local area network (LAN), wide area network (WAN), router, network cables, wireless **Quizzing** audience, collaboration, concept map, database, quiz **Binary** base 10, base 2, binary, bit, byte, decimal, denary, digit, gigabyte (GB), integer, kilobyte (KB), machine code, megabyte (MB), nibble, switch, tetrabyte (TB), transistor, variable
Key Skills	**To Code**	**To Code**	**To Code** ● Motion – Set IF conditions for movements. Specify types of rotation giving the number of degrees.			

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Milestones	• Motion – Control motion by specifying the number of steps to travel, direction and turn. • Looks – Add text strings, show and hide objects, and change the features of an object. • Sound – Select sounds and control when they are heard, their duration and volume. • Draw – Control when drawings appear and set the pen colour, size and shape. • Events – Specify use inputs (such as clicks) to control events. • Control – Specify the nature of events (such as a single event or a loop). • Sensing – Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?) **To Communicate**	• Motion – Use specified screen coordinates to control movement. • Looks – Set the appearance of objects and create sequences of changes. • Sound – Create and edit sounds. Control when they are heard, their volume, duration and rests. • Draw – Control the shade of pens. • Events – Specify conditions to trigger events. • Control – Use IF – THEN conditions to control events or objects. • Sensing – Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). • Variables and lists – Use variables to store a value. • Variables and lists – Use the functions define, set, change, show and hide to control the variables. • Operators – Use the Reported operators () + () () – () () / () to perform calculations. **To Communicate**	• Looks – Change the position of objects between screen layers (send to back, bring to front) • Sound – Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. • Draw – Combine the use of pens with movement to create interesting effects. • Events – Set events to control other events by 'broadcasting' information as a trigger. • Control – Use IF – THEN – ELSE conditions to control events. • Sensing – Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions. • Variables and lists – Use lists to create a set of variables. • Operators – Use the Boolean operators () < () () = () () > () () and () () or () Not () to define conditions. • Operators – Use the Reporter operators () + () () – () () * () () / () to perform calculations. Pick random () to () Join () () Letter () of () Length of () () Mod () (this reports the reminder after a division calculation). Round () () of (). **To Communicate** • Choose the most suitable applications and devices for the purposes of communication. • Use many of the advanced features in order to create high-quality, professional or efficient communications. **To Collect** • Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner. **To Connect** • Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. • Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission from the copyright holder.

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	• Understand online risks and the age rules for sites. • Use a range of applications and devices in order to communicate ideas, work and messages. **To Collect** • Use simple databases to record information in areas across the curriculum. **To Connect** • Understand online risks and the age rules for sites.	• Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally. **To Collect** • Device and construct databases using applications designed for this purpose in areas across the curriculum. **To Connect** • Give examples of the risks posed by online communications. • Understand the term 'copyright'. • Understand that comments made online that are hurtful or offensive are the same as bullying. • Understand how online services work.	• Understand the effect of the online comments and show responsibility and sensitivity when online. • Understand how simple networks are set up and used.
BAD Assessment	**To Code** • Motion - Control motion by specifying the number of steps to travel, direction and turn. Basic - With support from a teacher, basic movement is controlled.	**To Code** • Motion – Use specified screen coordinates to control movement. Basic – There is some awareness that movement may be controlled around specified screen coordinates.	**To Code** • Motion – Set IF conditions for movements. Specify types of rotation giving the number of degrees. Basic – There is some experimentation with conditions and degrees of movement.

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	Advancing - Generally, steps and direction of turn are understood. Deep - Precise movement is achieved using basic instructions. ● Looks - Add text strings, show and hide objects, and change the features of an object. Basic - With the support of a teacher, the basic features of an object are altered. Advancing - There is some experimentation with variables to change the basic features of an object. Deep - There is a good understanding of how to change the basic features of an object. ● Sound - Select sounds and control when they are heard, their duration and volume.	Advancing – There is some experimentation with controlling movement around specified screen coordinates. Deep – There is a good understanding that screen coordinates may be used to control movement. ● Looks – Set the appearance of objects and create sequences of changes. Basic – There is some awareness of how to alter the appearance of objects and create sequences of changes. Advancing - There is some experimentation with setting the appearance of objects and sequences of changes. Deep - There is a good understanding of how to set the appearance of objects and in creating sequences of changes. ● Sound – Create and edit sounds. Control when they are heard, their volume, duration and rests. Basic – There is some awareness of how to create and edit sounds. Advancing - There is some experimentation with the creation and editing of sounds.	Advancing – There is some good examples of the use of conditions and degrees of movement. Deep – There are many well-executed examples of the use of conditions and degrees of movement. ● Looks – Change the position of objects between screen layers (send to back, bring to front). Basic – There is some experimentation with screen layers. Advancing - There are some good examples of effective manipulation of objects between screen layers. Deep – Screen layers are used effectively to control the position and visibility of objects. ● Sound – Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. Basic – There is some experimentation with importing and editing sounds. Advancing - There is some good examples of importing and editing sounds. Deep - There is a very good understanding of the process of sound import and the subsequent editing of the sound to create interesting effects. ● Draw – Combine the use of pens with movement to create interesting effects.

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	Basic - With the support of structured activities, sounds are controlled. Advancing - There is some experimentation with controlling sound. Deep - There is a good understanding of how to control sound. • Draw - Control when drawings appear and set the pen colour, size and shape. Basic - With the support of structured activities, drawings are created. Advancing - There is some experimentation with controlling draw tools. Deep - There is a good understanding of how to control draw tools. • Events - Specify user inputs (such as clicks) to control events.	Deep - There is a good understanding of how to create and edit sounds. • Draw - Control the shade of pens. Basic – There is some awareness that the shape of tools may be altered. Advancing - There is some experimentation with altering the shape of tools. Deep - There is a good understanding of how to alter the shape of tools to create different effects. • Events - Specify conditions to trigger events. Basic – There is some awareness of triggers for events. Advancing - There is some experimentation with various triggers for events. Deep - There is a good understanding of how to specify triggers for events. • Control – Use IF – THEN conditions to control events or objects. Basic – There is some awareness that IF – THEN conditions may be set.	Basic – There is some experimentation with combining tools with movement. Advancing – Some interesting effects are gained through combining tools with movement. Deep – Some excellent effects are gained through well-planned combinations of tools and movement. • Events – Set events to control other events by 'broadcasting' information as a trigger. Basic – There is some awareness of how to broadcast events. Advancing - There is some good examples of broadcast events. Deep - There are many very good examples of choosing, using and explaining broadcast events. • Control – Use IF – THEN conditions to control events or objects. Basic – There is some awareness that IF – THEN conditions may be set. Advancing - There is some experimentation with IF – THEN conditions. Deep - There is a good understanding of how to use IF – THEN conditions. • Sensing – Use a range of sensing tools (including proximity, user inputs, loudness and moust position) to control events or actions.

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	Basic - With the support of structured activities, user inputs are specified. Advancing - There is some experimentation with user inputs to control events. Deep - There is a good understanding of how to control events by specifying user inputs. ● Control - Specify the nature of events (such as a single event or a loop). Basic - With the support of a teacher, the nature of events is specified. Advancing - There is some experimentation with specifying the nature of events. Deep - There is a good understanding of how and when to specify the nature of events.	Advancing - There is some experimentation with IF – THEN conditions. Deep - There is a good understanding of how to use IF – THEN conditions. ● Sensing - Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). Basic – There is some awareness that actions may be controlled by proximity or user input. Advancing - There is some experimentation with sensing proximity or user input to trigger actions. Deep - There is a good understanding that proximity and user inputs may be used to trigger actions. ● Variables and Lists – Use variables to store a value. Basic – There is some awareness of the term 'variable' and that variables may be set to store a value. Advancing – There is some experimentation with using variables to store a value.	Basic – There is some awareness that there are a range of sensing tools that may be used to control events or actions. Advancing - There are some good examples of using a range of sensing tools to control events or actions. Deep – There are many very good well-chosen examples of, with explanations for, the use of sensing tools to control events or actions. ● Variables and Lists – Use lists to create a set of variables. Basic – There is some awareness of how to create a set of variables. Advancing – There are some good examples of sets of variables in a range of situations. Deep – There is a thorough understanding of how to create and use sets of variables. ● Operators – Use the Boolean operators () + () () – () () * () () / () to perform calculations. Pick Random () to () Join () () Letter () of () Length of () () Mod () (this reports the remainder after a division calculation). Round () () of (). Basic – There is some understanding of the use of operators to perform calculations and to refine the reporting of results. Advancing – There are some good examples of the use of operators to perform calculations and to refine the reporting of results. Deep – There is a thorough understanding of the use of operators to perform calculations and to refine the reporting of results.

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	• Sensing - Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?). Basic - With the support of a teacher, user responses are explored. Advancing - There is some experimentation with the nature of user responses and the required user inputs. Deep - There is a good understanding of how to seek a user response in a range of situations. **To Communicate** • Understand online risks and the age rules for sites. Basic - Online activity is closely monitored by a teacher. Advancing - There is some awareness of some online risks.	Deep – The term variable is understood, and used to store a value. • Variables and Lists – Use the functions define, set, changes, show and hide to control the variables. Basic – There is some awareness of the use of functions to control variables. Advancing – There is some experimentation with controlling variables. Deep – There is a good understanding of how and when to use functions to control variables. • Operators – Use the Reporter operators () + () () – () () / () to perform calculations. Basic – Some calculations are performed using basic reporter operations. Advancing – Calculations using basic reporter operations are generally accurate. Deep – Accurate and well applied calculations are performed using basic reporter operations. **To Communicate** • Use some of the advanced features of applications and devices in order to	• Operators – Choose the most suitable applications and devices for the purposes of communication. Basic – Some choices are made in selecting and using apps and devices for communicating ideas. Advancing – Good choices are made in selecting and using apps and devices for communicating ideas. Deep – Excellent choices are made in selecting and using apps and devices for communicating ideas. • Operators – Use many of the advanced features in order to create high-quality, professional or efficient communications. Basic – Some high-quality work is produced. Advancing – There are many examples of high-quality work. Deep – There are widespread and very good examples of high-quality work. **To Communicate** • Choose the most suitable applications and devices for the purposes of communication. Basic – Some choices are made in selecting and using apps and devices for communicating ideas.

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	Deep - There is a growing awareness of some of the rules in place to minimise online risks. ● Use a range of applications and devices in order to communicate ideas, work and messages. Basic - With guidance, a range of devices and apps are used to communicate with others. Advancing - There is a growing awareness of a range of devices and apps that are used to communicate with others. Deep - There is a good understanding of a wide range of devices and apps that can be used to communicate with others. **To Collect** ● Use simple databases to record information in areas across the curriculum.	communicate ideas, work or messages professionally, Basic – There are some attempts to create appropriate formats for communicating ideas. Advancing - There is some interesting experimentation with formats and styles for communicating ideas. Deep - There is a good understanding that ideas need to be presented in interesting and easy – to – understand formats. **To Collect** ● Devide and construct databases used applications designed for this purpose in areas across the curriculum. Basic – There are some attempts to devise databases. Advancing - There are some good examples of database creations across the curriculum. Deep – There are many good examples of well-planned databases that have been created across the curriculum.	Advancing – Good choices are made in selecting and using apps and devices for communicating ideas. Deep – Excellent choices are made in selecting and using apps and devices for communicating ideas. ● Use many of the advanced features in order to create high-quality, professional or efficient communications. Basic – Some high-quality work is produced. Advancing - There are many examples of high-quality work. Deep – There are widespread and very good examples of high-quality work. **To Collect** ● Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner. Basic – There is some awareness of how to devise, construct and manipulate data. Advancing – The manipulation of data is efficient and its presentation is becoming professional.

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	Basic - With the support of a teacher, simple databases are used. Advancing - There is a growing awareness of how databases are used. Deep - Many good examples of using databases across the curriculum are developing. **To Connect** ● Understand online risks and the age rules for sites. Basic - With the support of a teacher, some of the risks posed by online sites are explored. Advancing - There is a growing awareness that sites have age restrictions and some of the reasons for this are understood. Deep - Age rules for sites are understood and good examples of some online risks are given.	**To Connect** ● Give examples of the risks posed by online communications. Basic – Some examples of online risks are offered, when questioned. Advancing – Whilst online, there is a growing awareness of how to keep safe. Deep – Many good examples of how to keep safe whilst online are provided. ● Understand the term 'copyright'. Basic – There is some awareness of the term 'copyright' and what it means. Advancing – The term 'copyright' is generally understood. Deep – The term 'copyright' is understood and the understanding of its meaning applied to a number of contexts. ● Understand the comments made online that are hurtful or offensive are the same as bullying. Basic – There is some awareness that hurt and offence may be caused online.	Deep – The manipulation of data is very well thought out and reasoned well. There is a high degree of professional presentation of data. **To Connect** ● Give examples of the risks of online communities and demonstrate knowledge of hos to minimise risk and report problems. Basic – Some examples of tje risks of online communities and the measures to take to minimise risks are given. Advancing – There is a good understanding of the risks of online communities and the measures to take to minimise risks. Deep – There is a thorough understanding of the risks of online communities and the measures to take to minimise risks. ● Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission from the copyright holder. Basic – There is an awareness that copyright theft is illegal. Advancing – There is a good understanding that copyright theft is illegal. Deep – There is a thorough understanding that copyright theft is illegal.

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		Advancing – In discussion, some good examples of how to behave respectfully towards others online are provided. Deep – There is a good understanding of how to behave respectfully towards others online. ● Understand how online services work. Basic – There is some awareness of how online services work. Advancing – There is a growing understanding of how familiar online services work. Deep – Many good examples of how online services work are provided.	● Understand the effect of the online comments and show responsibility and sensitivity when online. Basic – Online comments are responsible and sensitive. Advancing – There is a good awareness of the effect of online comments. Comments made online are responsible and sensitive. Deep – Explanations show an in-depth understanding of the effect of irresponsible online comments. Comments made are responsible and sensitive. ● Understand how simple networks are set up and used. Basic – There an awareness of how simple networks are set up and used. Advancing – There is a good understanding of how simple networks are set up and used. Deep – There is a thorough understanding of how networks are set up and used.

POP Tasks						