Computing Progression Map

KS1	We are Painters 1.3 (illustrating an eBook)	We are Story Tellers 1.5 (Producing a Talking Book)	We are Celebrating 1.6 (Creating a Card Digitally)	We are Photographers 2.3 (Taking Better Photos)	We are Zoologists 2.6 (Collecting Data about Bugs)
National Curriculum Program of Study	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully,** keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Use a paint program to create an illustration Edit an image Combine multiple illustrations into a single document Export a document in a portable format Know what to do if they find inappropriate images	**ALL CHILDREN SHOULD BE ABLE TO:** Plan and rehearse the sound effects needed in an audio book Plan and rehearse the dialogue needed in an audio book Record sound effects using a digital audio recorder (or software) Record dialogue directly to a computer Be able to retrieve previously saved work	**ALL CHILDREN SHOULD BE ABLE TO:** Enter text for their card Find appropriate images using a search engine Combine text and an image to make a greetings card Be able to save and load files from the computer drive or network	**ALL CHILDREN SHOULD BE ABLE TO:** Take photos using a digital camera, tablet or smartphone Review and reject photos Add titles and stars to digital photos Apply adjustments and effects to digital photos Select their favourite photos for inclusion in a shared portfolio Let you know if they find images they are concerned about	**ALL CHILDREN SHOULD BE ABLE TO:** Take digital photographs of bugs Import photos to a computer or the network Create charts to show the data they collect Explore Google Maps or Google Earth to find a familiar location Create an IWB resource summarising their data
	MOST CHILDREN WILL BE ABLE TO: Find relevant illustrations on the web Use a paint program to create an illustration that conveys character Make improvements to an image using paint software Be able to retrieve previously saved work Give constructive feedback to other pupils	**MOST CHILDREN WILL BE ABLE TO:** Review and improve sound effect recordings Review and improve dialogue recordings Organise sound effect recordings Give constructive feedback to other pupils Compare audio books with printed books	**MOST CHILDREN WILL BE ABLE TO:** Understand how to use the keyboard to enter non-alphabetic characters Modify the appearance of text on their card Edit images to personalise them Combine text and an image to make a greetings card with a clear sense of purpose Think about the relative merits of printed greetings cards and e-cards	**MOST CHILDREN WILL BE ABLE TO:** Review others' photos, considering their technical merits Take focused, sharp photos Crop and straighten digital photos Explain why they should not post some photographs publicly	**MOST CHILDREN WILL BE ABLE TO:** Use classification keys to identify a class of things from questions about their properties Edit and enhance photographs, including cropping Add titles and ratings to photos Add titles to charts and labels to axes Add information about the location of bugs to Google Maps Engine or Google Earth Present their research to their classmates
	SOME CHILDREN WILL BE ABLE TO: Think about how digital illustrations may have been created Appreciate how image files are stored on a computer Revise their work on the basis of feedback they receive	**SOME CHILDREN WILL BE ABLE TO:** Record high quality sound effects using a digital audio recorder or software Record high quality dialogue directly to a computer Combine sound effects with dialogue in their recordings Appreciate how audio recordings are stored on a computer	**SOME CHILDREN WILL BE ABLE TO:** Appreciate the need for efficient and accurate typing Ensure that their text is spelled correctly and is appropriate for their event and recipient Create a pleasing card combining a sourced image and their own work Make well-judged changes or additions to their card Begin to understand how files are stored on a computer drive or the network	**SOME CHILDREN WILL BE ABLE TO:** Review others' photos, considering their artistic merits Take effective and artistic photos Use image editing software to create artistic, effective images Explain how they produced their final images	**SOME CHILDREN WILL BE ABLE TO:** Take focused, well-composed photographs of bugs Use GPS to identify the location of bugs Explore options in charting software Add photographs to Google Earth

LKS2	We are Presenters 3.3 (Videoing performance)	We are Opinion Pollsters 3.6 (Collecting and Analysing Data)	We are Vloggers 3.4 (Making and sharing a short screencast presentation)	We are Meteorologists 4.6 (Presenting the Weather)
National Curriculum Program of Study	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; **work with variables and various forms of input and output** Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in **algorithms and programs** **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** **Use search technologies** effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly;** recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web;** and the opportunities they offer for communication and collaboration **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; **work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work** and to detect and correct errors in algorithms and programs Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Operate a simple video camera correctly Record useable footage Import and edit their footage Record an audio commentary for their footage	**ALL CHILDREN SHOULD BE ABLE TO:** Collect data via the internet Treat data collected in a way that shows respect for individuals Use Google Forms to collect data Use Google Slides to present their results	**ALL CHILDREN SHOULD BE ABLE TO:** Know what to do if they have concerns over inappropriate content at school Find relevant search results using Google Find relevant images using Google Realise that, when they use the web, they connect via the internet to other computers Know that search results show pages that include the key words from their query Design and deliver their own presentation	**ALL CHILDREN SHOULD BE ABLE TO:** Use weather measurement equipment safely Enter data Take digital photos Create simple charts Make predictions Create a presentation for their weather forecast
	MOST CHILDREN WILL BE ABLE TO: Analyse existing sports coverage to learn how this is shot Record high quality footage Record a detailed, informative commentary Export the movie in a standard format Critically review their footage	**MOST CHILDREN WILL BE ABLE TO:** Explain how the web has allowed them to work collaboratively on a number of different documents Critique survey forms and presentations Move information between different applications Analyse the data collected	**MOST CHILDREN WILL BE ABLE TO:** Know what to do if they have concerns over inappropriate content at home Be able to research a topic efficiently Be able to find appropriate, Creative Commons licensed images using Google Understand that text and information is communicated as numbers across the internet Understand that Google results are based on the key words in its index of a copy of the web Design and record an effective presentation	**MOST CHILDREN WILL BE ABLE TO:** Use weather measurement equipment accurately Describe the weather Make sensible predictions Add measurements and descriptions to photographs Present the weather effectively to their peers
	SOME CHILDREN WILL BE ABLE TO: Record creative footage Make use of data in their commentary Use more advanced video editing tools, such as transitions, captions or credits	**SOME CHILDREN WILL BE ABLE TO:** Explain how they and their respondents have used services running on Google data centre servers via the internet Show an awareness of data protection issues raised by the use of online surveys Review the data critically, looking for exceptions and patterns Complete the challenge without much support or guidance from you	**SOME CHILDREN WILL BE ABLE TO:** Use filters to refine search queries on Google Understand the importance of citing the source for images they use Understand that the web is just one application of the internet Understand that Google ranks pages according to the number and quality of inbound links Design a visually attractive, interesting presentation	**SOME CHILDREN WILL BE ABLE TO:** Identify unusual data Make accurate predictions Consider some of the difficulties in predicting the weather

UKS2	We are Bloggers 5.5 (Sharing Experiences and Opinions)	We are Architects 5.6 (Creating a Virtual Space)	We are Travel Writers 6.5 (Using media and mapping to document a trip)	We are Advertisers 6.3 (Creating a Short Television Advert)	We are Network Technicians 6.4 (Exploring computer networks including the internet)	We are Publishers 6.6 (Creating a yearbook or magazine)
National Curriculum Program of Study	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	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Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Understand how to use blogs safely and responsibly Understand how the internet makes blogging possible Write a blog post Comment on a blog post Add an image, audio or video to a blog post	**ALL CHILDREN SHOULD BE ABLE TO:** Use the web to explore virtual art galleries Create simple objects using SketchUp Create a simple gallery space in SketchUp Add furniture to their gallery in SketchUp Add their artwork to the gallery Create an animated walkthrough of their gallery	**ALL CHILDREN SHOULD BE ABLE TO:** Find out about the venue for their visit Use online tools to plan a route to their destination Collect a range of digital content Identify the best content they record Add markers to a digital map Write online content about their visit easily navigable	**ALL CHILDREN SHOULD BE ABLE TO:** Contribute to the planning of the magazine/ yearbook Source content for their pages Word-process text Combine words and pictures to create pages Spot and correct errors in content Compare the cost of printing options	**ALL CHILDREN SHOULD BE ABLE TO:** Understand that information is communicated digitally across the internet Name hardware used in connecting computers together Appreciate the route taken by packets of data across the internet Understand that domain names are converted to numbers Appreciate the implications of how networks work for their online safety	**ALL CHILDREN SHOULD BE ABLE TO:** Contribute to the planning of the magazine / yearbook Source content for their pages Word-process text Combine words and pictures to create pages Spot and correct errors in content Compare the cost of printing options
	MOST CHILDREN WILL BE ABLE TO: Identify the criteria for an effective blog post Understand that blog posts are stored as HTML Understand how to comment respectfully Report concerns about posts or comments on blogs Appreciate what constitutes acceptable and unacceptable behaviour when commenting Add their own original image, audio or video to a blog post	**MOST CHILDREN WILL BE ABLE TO:** Identify common characteristics of art galleries using the web Create complex, compound objects using SketchUp Apply appropriate finishes to surfaces in SketchUp Create a narrated walkthrough of their gallery	**MOST CHILDREN WILL BE ABLE TO:** Use search facilities in a range of online reference tools to research the venue for their visit Compare different routes to the venue Store a GPS tracklog to record the route they take during their visit Edit the content they have captured Add a tracklog to a digital map Combine written text about their visit with images and video	**MOST CHILDREN WILL BE ABLE TO:** Take responsibility for developing pages for the magazine/yearbook Use collaborative software to plan and create content for their pages Word-process text quickly and to a good standard Pay attention to principles of good design when designing and creating pages or spreads Provide constructive, critical feedback to others Identify the best printing option.	**MOST CHILDREN SHOULD BE ABLE TO:** Convert messages between text and USASCII code Describe the function of the different hardware used to connect computers together Describe how data is transmitted via the internet Have some understanding of how DNS works Consider ways that their safety or privacy may be compromised by using the internet	**MOST CHILDREN SHOULD BE ABLE TO:** Take responsibility for developing pages for the magazine/yearbook Use collaborative software to plan and create content for their pages Word-process text quickly and to a good standard Pay attention to principles of good design when designing and creating pages or spreads Provide constructive, critical feedback to others Identify the best printing option standard
	SOME CHILDREN WILL BE ABLE TO: Appreciate the difference between database driven sites, such as a WordPress blog, and static HTML pages Appreciate what constitutes acceptable and unacceptable behaviour in relation to using others' original work Keep up with an event in a live blog	**SOME CHILDREN WILL BE ABLE TO:** Create aesthetically pleasing complex objects using SketchUp Create a complex collection of interlinked rooms in SketchUp Create furniture for their gallery Edit the walkthrough of their gallery in a video editor	**SOME CHILDREN WILL BE ABLE TO** Appreciate how Google selects and ranks results for a search Consider how a computer calculates the best route for a journey Consider the privacy implications of smartphones storing location information Identify criteria for high-quality media Add online images/videos to a digital map Ensure their website is well structured and	**SOME CHILDREN WILL BE ABLE TO:** Take a lead in the development of the magazine/yearbook Think critically about the quality of content Word-process text, taking into account the needs of their audience Lead the overall structure and design for the magazine / yearbook Take a lead in ensuring the content of the whole magazine / yearbook is of the highest standard	**SOME CHILDREN SHOULD BE ABLE TO:** Consider how information other than text can be communicated digitally via the internet Discuss the hardware involved in connecting a classroom computer to a web server in another country Discuss some of the protocols involved in transmitting data via the internet Consider the implications of unrestricted access to the internet	**SOME CHILDREN SHOULD BE ABLE TO:** Take a lead in the development of the magazine/yearbook Think critically about the quality of content Word-process text, taking into account the needs of their audience Lead the overall structure and design for the magazine / yearbook Take a lead in ensuring the content of the whole magazine / yearbook is of the highest

KS1	We Are Treasure Hunters (1.1)	We are TV Chefs (1.2)	We are Astronauts (2.1)	We are Games Testers (2.2)
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Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Follow instructions to move around a large space Record a set of instructions for a toy Program a toy to move by giving one instruction at a time Program a toy to move by giving a set of instructions	**ALL CHILDREN SHOULD BE ABLE TO:** Create a recipe with correctly ordered steps Film video Import their video to the computer	**ALL CHILDREN SHOULD BE ABLE TO:** Plan an algorithm to move a spaceship from Earth to the Moon Implement algorithms on floor turtles Implement algorithms as programs on a screen sprite using simple blocks without parameters Debug their programs Solve the Earth–Moon challenge on a variety of programmable devices	**ALL CHILDREN SHOULD BE ABLE TO:** Understand that computer games are made up of precise instructions for the computer to follow Understand that computer programmers will have implemented many algorithms in making a computer game Use logical reasoning to make predictions about what happens next Suggest ways in which simple computer games could be improved Be aware of and observe age restrictions on commercial games Know that they should tell their parents or carers if they are concerned about something in a computer game
	MOST CHILDREN WILL BE ABLE TO: Give one another instructions to move around a large space Understand input, program and output in the context of a robotic toy Create a program to move a toy to a particular location Debug a program	**MOST CHILDREN WILL BE ABLE TO:** Create a recipe with clear steps Predict what will happen when someone follows their recipes Film video, keeping the camera still and steady Join video clips together	**MOST CHILDREN WILL BE ABLE TO:** Plan an algorithm to move a spaceship from Earth to the Moon and then to Mars Follow instructions given to them as if they were a robot Use logical reasoning to predict what their programs will do Solve the Earth–Moon–Mars challenge on a variety of programmable devices	**MOST CHILDREN WILL BE ABLE TO:** Describe clearly what happens in a computer game Conduct tests to check their predictions Notice common features in several game algorithms Understand that playing computer games should be balanced with other activities
	SOME CHILDREN WILL BE ABLE TO: Predict where a set of instructions will take a pupil moving in a large space Predict where a toy will end up from a set of instructions Understand input, program and output in more general contexts Look for ways in which a program could be made more efficient	**SOME CHILDREN WILL BE ABLE TO:** Create a recipe with unambiguous steps Correct their algorithms Film a variety of shots Use more advanced video editing techniques (such as transitions or narration)	**SOME CHILDREN WILL BE ABLE TO:** Implement algorithms as programs on a screen sprite using blocks with parameters Find particularly efficient, elegant or original solutions to these challenges	**SOME CHILDREN WILL BE ABLE TO:** Explore the Scratch source code for simple computer games Make changes to the Scratch source code for simple computer games Reflect on what makes games enjoyable and sometimes addictive

LKS2	We are Programmers 3.1 (Programming an Animation)	We are Musicians 4.3 (Producing Digital Music)	We are Toy Designers 4.2 (Prototyping an Interactive Toy)
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	MOST CHILDREN WILL BE ABLE TO: Correct mistakes in their animation programs Create their own sound and graphics for the sprites and the backdrop Explain the connection between their storyboard and the scene they're animating	**MOST CHILDREN WILL BE ABLE TO:** Explain how digital technology contributes to distributing music Edit samples Refine and develop their composition Edit their final composition	**MOST CHILDREN WILL BE ABLE TO:** Make a virtual prototype of a toy with computer-controlled input and output Create a working virtual prototype with scripts to control a sprite responding to mouse and keyboard input Debug problems they encounter
	SOME CHILDREN WILL BE ABLE TO: Use a *repeat* block to switch between costumes to create the illusion of movement Think logically to detect and correct errors in their animation program Publish their animations on the Scratch community website Glean ideas from others' work on the Scratch website	**SOME CHILDREN WILL BE ABLE TO:** Use staff-based music notation software Appreciate the similarities and differences between composition and programming Appreciate that copyright exists in original work and that this should be respected	**SOME CHILDREN WILL BE ABLE TO:** Use logical reasoning to identify and correct bugs in their simulation's software Solve problems they encounter by breaking them down into smaller steps

UKS2	Game Developers 5.1 (Developing an Interactive Game)	We Are Artists 5.3 (Fusing Geometry and Art)	Adventure Games 6.1 (Making a Text Based Adventure Game)
National Curriculum Program of Study	**Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts** **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts** **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Create an algorithm for a game Create images and sounds for use in their game Use sequences of instructions Detect errors in their game	**ALL CHILDREN SHOULD BE ABLE TO:** Create a tessellating pattern Write a program to draw a simple shape Create a pattern using overlapping shapes Create a pattern using repeating, varied shapes Create a computer-generated landscape	**ALL CHILDREN SHOULD BE ABLE TO:** Type some commands at Python's interactive shell Create a plan for a text-based adventure Use the print command in Python Use variables and selection in Python Use procedures in Python Create a list in Python
	MOST CHILDREN WILL BE ABLE TO: Create music for use in their game Use selection and repetition in their game Correct errors in their game Improve their game on the basis of the feedback they receive Add instructions to their game	**MOST CHILDREN WILL BE ABLE TO:** Create a tessellating pattern using more complex shapes Use repetition in a program to draw a more complex geometric figure Create a pattern using repeating, varied shapes using the tile clone tool or similar Create an aesthetically pleasing computer generated landscape	**MOST CHILDREN WILL BE ABLE TO:** Correct mistakes in commands typed at Python's interactive shell Draw a graph to show the locations in a text-based adventure Spot and correct syntax errors in Python print commands Use variables and if / elif / else selection in Python Define multiple procedures in Python, correctly observing the syntax rules Choose randomly from a Python list
	SOME CHILDREN WILL BE ABLE TO: Break their game into its component parts and develop them separately Create multiple images for characters and use them for animation Use variables in their game Explain how their game works Include comments in the code for their game	**SOME CHILDREN** **WILL BE ABLE TO:** Use blocks of script they have written themselves to create a complex geometric figure in Scratch Explain in simple terms how computers can generate photorealistic landscapes	**SOME CHILDREN WILL BE ABLE TO:** Experiment with commands using Python's interactive shell, including the for and range commands Describe tree-like graphs, such as one for a choose your own adventure game Experiment with line-breaks and text blocks in Python print commands Explain what a procedure is Explain what a library is in Python

KS2 Ohbots	Year 3	Year 4	Year 5	Year 6
National Curriculum Program of Study	**Design, write and debug programs that accomplish specific goals, including** controlling or simulating physical systems; **solve problems by decomposing them into smaller parts** **Use sequence**, selection, and repetition in **programs;** work with variables and various forms of input and output **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts** **Use sequence**, selection, and **repetition in programs; work with variables** and various forms of input and output **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts** **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts** **Use sequence, selection, and repetition in programs; work with variables and various forms of input and output** **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs** Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Ohbot Learning Objectives	To know how to program a robot to carry out a sequence of movements. To know how to program a robot to carry out a sequence of movements when keys are pressed. To know how to use the 'repeat' function to write code. To know how to write two scripts that run simultaneously. To know how to program a robot to speak. To know how to test and debug a program.	To know how to program a robot to repeat movements with a random wait in between. To know how to program a robot to repeatedly move to random positions. To know how to use a variable to make Ohbot count. To know how to use a conditional to make a robot count to a certain value. To know how to use two variables. To know how to test and debug a program.	To know how to use a variable to make Ohbot say the date and time. I know how to use the if-then instruction. I know how to use the if-then-else instruction. I know how to broadcast. I know how to use broadcast to make my Ohbot do several thing simultaneously. To know how to test and debug a program.	I know how to program a robot to sense the position of a mouse. I know how to use a list in a program. I know how to use variables, conditionals and use the if-then-else instruction simultaneously. To know how to test and debug a program.

KS1	We Are Researchers 2.4 (Researching a Topic)	We are Detectives 2.5 (Collecting Clues)
National Curriculum Program of Study	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions Create and debug simple programs Use logical reasoning to predict the behaviour of simple programs **Use technology purposefully to create, organise, store, manipulate and retrieve digital content** **Recognise common uses of information technology beyond school** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.**
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Add questions to a mind map Add information from independent research to a mind map Locate information from one or more relevant websites Search for information on a small number of sites using a custom search engine Know how to report concerns over content when searching the web Create a short presentation summarising their findings	**ALL CHILDREN SHOULD BE ABLE TO:** Record audio or written notes from an email or attachments Explain why it is important to type email addresses correctly Read emails Compose and respond to emails
	MOST CHILDREN WILL BE ABLE TO: Organise questions on a mind map Cite the sources of the information they include Find information using a general purpose search engine Add appropriate images to a presentation Present their findings to an audience	**MOST CHILDREN WILL BE ABLE TO:** Understand the headers of an email Proofread emails before sending Identify the two parts of an email address Compile a simple database table from individual records Take appropriate action if concerned by the content of an email
	SOME CHILDREN WILL BE ABLE TO: Use only public domain or Creative Commons licensed images Structure a presentation effectively to teach others about their topic Present their findings in a lively and engaging way	**SOME CHILDREN WILL BE ABLE TO:** Decide if it is safe to open files attached to emails Understand some aspects of domain names Filter a database on the basis of provided criteria Appreciate other risks associated with emails

LKS2	We Are Communicators 3.5 (Communicating safely on the internet)	We are Co-authors 4.5 (Producing a Wiki)	We are HTML Editors 4.4 (Editing and Writing HTML)
National Curriculum Program of Study	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; **solve problems by decomposing them into smaller parts** Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** **Use search technologies effectively**, appreciate how results are selected and ranked, and **be discerning in evaluating digital content** Select, **use** and combine **a variety of software (including internet services)** on a range of digital devices **to** design and **create** a range of programs, systems and **content** that accomplish given goals, **including** collecting, analysing, evaluating and **presenting** data and **information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, **use and combine a variety of software (including internet services)** on a range of digital devices to design and create a range of programs, systems and content that **accomplish given goals**, **including** collecting, analysing, evaluating and **presenting data** and information **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour;** identify a range of ways to report concerns about content and contact.
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Realise that email and video conferencing work via the internet Use email and video conferencing to communicate Use text and video for communication Ensure their use of email and video conferencing complies with the school's AUP	**ALL CHILDREN SHOULD BE ABLE TO:** Find and read an article on Wikipedia Create content for a wiki Edit their own content Edit the HTML for a web page	**ALL CHILDREN SHOULD BE ABLE TO:** Understand the difference between the web and the internet Understand that web pages are written and transmitted in HTML Know and use some simple HTML tags Edit the HTML for a web page Create web pages that do not reveal pupils' personal information
	MOST CHILDREN WILL BE ABLE TO: Realise that the internet is different from the web Use email to work together on a joint project Show consideration and respect for their partners throughout Explain how they would report any concerns or inappropriate use of email	**MOST CHILDREN WILL BE ABLE TO:** Identify the sources used in their research Work with others to plan a project Evaluate an article for trustworthiness Edit others' content Edit content on Wikipedia	**MOST CHILDREN WILL BE ABLE TO:** Explain the parts of a URL Recognise the importance of links for the web Use the ... tag correctly to insert a link Create a web page by writing HTML Create web pages that show due regard for safety and responsibility
	SOME CHILDREN WILL BE ABLE TO: Work collaboratively to plan their projects without much input from you or the partner teacher Provide useful feedback to their partners Show an understanding of the dangers of opening email attachments, and other problems with email, such as spoofing and spam	**SOME CHILDREN WILL BE ABLE TO:** Organise a research project by breaking it into manageable parts Appreciate the importance of a neutral point of view Appreciate the pillars underpinning the Wikipedia project	**SOME CHILDREN WILL BE ABLE TO:** Show some understanding of HTTP Be aware of the history of the web Use <img /> and <iframe>...</iframe> tags effectively

UKS2	We Are Web Developers 5.4 (Creating a website about cyber safety)
National Curriculum Program of Study	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration** **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information** **Use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact.**
Assessment Statements	**ALL CHILDREN SHOULD BE ABLE TO:** Review others' content Appreciate how Google selects web pages in search results Show awareness of other search engines Create or curate content to demonstrate knowledge of safe, respectful and responsible use of technology Create or curate content to demonstrate knowledge of how to report concerns
	MOST CHILDREN WILL BE ABLE TO: Create or curate content to demonstrate knowledge of acceptable/unacceptable behaviour Correctly attribute third-party content on a shared site Evaluate web sources for quality and bias Correct spelling, punctuation and grammar errors in another's content Use tools to make web searches more efficient or effective
	SOME CHILDREN WILL BE ABLE TO: Draw on multiple sources to present a summary Make constructive and substantive changes to others' content Appreciate how Google ranks web pages in search results