

Inspire to Aspire

Nightingale Primary School

Computing Progression of Knowledge and Skills

Nightingale Primary School

Year R

National Curriculum Objectives	Digital Literacy	Computational Thinking	Creating	Being Digitally Responsible
<ul style="list-style-type: none">• 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.	<ul style="list-style-type: none">• Use different digital devices.• Recognise that you can access content on a digital device.• Use a mouse, touchscreen or appropriate access device to target and select options on screen.• Recognise a selection of digital devices.• Recognise the basic parts of a computer, e.g. mouse, screen, keyboard.• Select a digital device to fulfil a specific task, e.g. to take a photo.	<ul style="list-style-type: none">• Explore technology.• Repeat an action with technology to trigger a specific outcome.• Recognise the success or failure of an action.• Follow simple instructions to control a digital device.• Recognise that we control computers.• Input a short sequence of instructions to control a device.	<ul style="list-style-type: none">• Use technology to explore and access digital content.• Operate a digital device with support to fulfil a task.• Create simple digital content, e.g. digital art.• Choose media to convey information, e.g. image for a poster.	<ul style="list-style-type: none">• Are aware that some online content is inappropriate.• Are aware that information can be public or private.• Know to tell an appropriate adult if they see something on the computer that upsets them.

Nightingale Primary School

Year 1

National Curriculum Objectives	Digital Literacy	Computational Thinking	Creating	Being Digitally Responsible
<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Recognise a range of digital devices. ● Select a digital device to fulfil a specific task, e.g. to take a photo. ● Name a range of digital devices, e.g. laptop, phone, games console. ● Log on to the school computer / unlock the school tablet with support. ● Identify the basic parts of a computer, e.g. mouse, keyboard, screen. ● Use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer. ● Open key applications independently. ● Save and open files with support. ● Add an image to a document from a given folder/source with support. 	<ul style="list-style-type: none"> ● Recognise that computers <i>don't have a brain</i>. ● Explain that we control computers by giving them instructions. ● Create a simple program e.g. to control a floor robot. ● Create a simple algorithm. ● Predict the outcome of a simple algorithm or program. ● Explain what an algorithm is – a sequence of instructions to make something happen. ● Recognise the order of instructions in an algorithm is important. ● Debug an error in a simple algorithm or program e.g. for a floor robot. 	<ul style="list-style-type: none"> ● Create digital content, e.g. digital art. ● Choose media from a selection (e.g. images, video, sound) to present information on a topic. ● Recognise that you can find out information from a website. ● Recognise that you can edit digital content to change its appearance. ● Select basic tools/options to change the appearance of digital content, e.g. filter on an image/ font / size of paintbrush. ● Combine media with support to present information, e.g. text and images. 	<ul style="list-style-type: none"> ● Use a simple password when logging on, where relevant. ● Explain why we use passwords. ● Recognise examples of personal information e.g. name, image. ● Know who to tell if concerned about content or contact online. ● Recognise that digital content belongs to the person who created it. ● Talk about their use of technology at home.

Year 2

National Curriculum Objectives	Digital Literacy	Computational Thinking	Creating	Being Digitally Responsible
<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Recognise what a computer is (input > process > output). ● Recognise that a range of digital devices contain computers, e.g. phone, games console, smart speaker. ● Explain what the basic parts of a computer are used for. ● Identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen. ● Open key applications independently. ● Save and open files to/from a given folder. ● Add an image to a document from a given folder/source. ● Resize an image in a document. ● Highlight text and use arrow keys. Capture media independently (e.g. take photos, record audio). 	<ul style="list-style-type: none"> ● Identify different forms of digital content, i.e. text, image, video and audio. ● Recognise charts, pictograms and branching databases, and why we use them. ● Identify an object using a branching database ● Recognise an error in a branching database. -Create a branching database using pre-prepared images and questions ● Identify the features of a good question in a branching database. ● Independently plan out and create a branching database. ● Evaluate a given branching database and suggest improvements. 	<ul style="list-style-type: none"> ● Create simple digital content for a purpose, e.g. digital art. ● Recognise that we can use technology to record and playback audio or take and view photographs. ● Apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text. ● Present ideas and information by combining media, e.g. text and images. ● Explain that you can search for information on the internet. -Plan out digital content, e.g. a simple sketch or storyboard. ● Identify the common features of digital content, e.g. title, images. Recognise that we can use different types of media to convey information, e.g. text, image, audio, video. 	<ul style="list-style-type: none"> ● Remember a simple password to log on to the computer or a website. ● Identify rules for acceptable use of technology in school. ● Recognise what personal information is and the need to keep it private. ● Recognise that spending a lot of time in front of a screen can be unhealthy. ● Recognise that some information found online may not be true.

Year 3

National Curriculum Objectives	Digital Literacy	Computational Thinking	Creating	Being Digitally Responsible
<ul style="list-style-type: none"> ● 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 	<ul style="list-style-type: none"> ● Describe what a computer is (input > process > output). ● Explain the difference between input and output devices on a computer. ● Know where to save and open files (e.g. in shared folder). ● Save files with appropriate names. ● Use a keyboard effectively to type in text. ● Use left -right- and double-click on the mouse. ● Add an image to a document from the internet. ● Resize and move an image in a document. ● Use a search engine to find simple information. ● Recognise that school computers are connected. 	<ul style="list-style-type: none"> ● Predict the outcome of a block or textbased program (Scratch/Logo). ● Successfully modify an existing program, e.g. change background, number of times things happen. ● Identify repeated steps in a program or algorithm. ● Create examples of algorithms containing count-controlled loops. ● Use a count-controlled loop (e.g. repeat 3 times) to make a program more efficient. ● Recognise that we can create an algorithm to help plan out a program. ● Recognise a forever loop in a program or algorithm and use a foreverloop in a program to keep something happening. ● Identify errors in a block or text-based program and correct them. ● Recognise that different inputs can be used to control a program. 	<ul style="list-style-type: none"> ● Present ideas and information by combining media independently, e.g. text and images. ● Design and create simple digital content for a purpose/audience, e.g. poster. ● Edit digital content to improve it, e.g. resize text. ● Identify the features of a good piece of digital content. ● Explain why we use technology to create digital content. ● Recognise why we use different types of media to convey information, e.g. text, image, audio, video. 	<ul style="list-style-type: none"> ● Explain why we need to keep our password safe. ● Recognise that digital content belongs to the person who first created it, but we can give permission for others to use it. ● Recognise when to share personal information and when not to. ● Recognise that some people lie about who they are online. ● Are aware that games and films have age ratings.

Year 4

National Curriculum Objectives	Digital Literacy	Computational Thinking	Creating	Being Digitally Responsible
<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Recognise that you can organise files using folders. ● Explain what a good file name would look like. ● Delete and move files. - Use key parts of a keyboard effectively, e.g. shift, arrow keys, delete). ● Know how to copy and paste text or images in a document. ● Crop an image and apply simple filters. ● Use a search engine to find specific information. ● Recognise that school computers are connected together on a network. 	<ul style="list-style-type: none"> ● Create a program using a range of events/inputs to control what happens. ● Recognise that we can decompose a problem into smaller parts to help solve it. ● Explain when to use forever loops and count-controlled loops and use them in programs. -Recognise selection in a program algorithm. -Use selection in algorithms in programs to alter what happens when a condition changes, e.g. if...then... -Design a program for a purpose. Decompose into parts and create an algorithm for each one. Recognise common mistakes in programs and how to correct them. 	<ul style="list-style-type: none"> ● Collect, organise and present information using a range of media. ● Design and create digital content for a specific purpose, e.g. poster, animation. ● Edit digital content to improve it according to feedback. ● Identify the features of a good piece of digital content and apply these in own design. ● Explain the benefits of using technology to present information. ● Know where to find copyright- free content, e.g. creative commons images. Collaborate with peers using online tools, e.g. blogs, Google Drive, Office365, if available. 	<ul style="list-style-type: none"> ● Remember and use an individual password. ● Recognise what kinds of websites are trustworthy sources of information. ● Recognise the benefits and risks of different apps and websites. ● Recognise that the media can portray groups of people differently. ● Can rate a game or film they have made and explain their rating

Year 5

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<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Type using fingers on both hands. ● Use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste). ● Explain what makes a strong password. – ● Use folders to organise files. ● Know how to mute and unmute audio on a computer or tablet. ● Recognise that there is more than one search engine and they may produce different results. ● Use a search engine effectively to find information and images. ● Know how to search for an application on a computer/tablet. 	<ul style="list-style-type: none"> ● Name a range of sensors in physical systems. ● Recognise that different solutions may exist for the same problem. ● Predict what will happen in a program or algorithm when the input changes (e.g. sensor, data or event). ● Use two-way selection in programs and algorithms, i.e. if...then...else... ● Recognise variables in a program and what they do. ● Create programs including repeat until loops. ● Create and use simple variables, e.g. to keep score. ● Evaluate a program and make improvements to the code or design accordingly. ● Create an algorithm for a physical system containing a sensor. 	<ul style="list-style-type: none"> ● Identify and use appropriate hardware and software to fulfil a specific task. ● Remix and edit a range of existing and their own media to create content. ● Consider the audience when designing and creating digital content. ● Recognise the benefits of using technology to collaborate with others. ● Identify success criteria for creating digital content for a given purpose and audience. ● Evaluate their own content against success criteria and make improvements accordingly. 	<ul style="list-style-type: none"> ● Know where to find copyright free images and audio, and why this is important. ● Critically evaluate websites for reliability of information and authenticity. ● Demonstrate responsible use of online services, and know a range of ways to report concerns

Year 6

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<ul style="list-style-type: none"> ● 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 	<ul style="list-style-type: none"> ● Type efficiently using both hands. ● Use a range of keyboard shortcuts. ● Recognise that different devices may have different operating systems. ● Organise files effectively using folders and files names. ● Use the advanced search tools when using a search engine to find specific information and images. ● Explain the basic function of an operating system. ● Recognise common file types and extensions e.g. jpeg, png, doc, wav ● Recognise a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do. 	<ul style="list-style-type: none"> ● Design and program a physical computing system that uses sensors. ● Recognise and use procedures (subroutines) in programs. ● Plan out a program in detail, including task, algorithm, code and execution level. ● Explain common errors in programs and how to fix them. ● Use nested selection statements in a program or algorithm effectively. ● Combine a variable with relational operators (< = >) to determine when a program changes, e.g. if <code>score > 5</code>, say "well done". ● Recognise key concepts (sequence, selection, repetition and variables) in a range of languages and contexts. 	<ul style="list-style-type: none"> ● Select, combine and remix a range of media to create original content. ● Consider all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.) ● Identify the most effective tools to present information for a specific purpose. ● Explain the benefits of using technology to collaborate with others. ● Evaluate existing digital content in terms of effectiveness and design. 	<ul style="list-style-type: none"> ● Explain what makes a strong password and why this is important at school and in the wider world. ● Explain how algorithms are used to track online activities with a view to targeting advertising and information. ● Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling.