

Computing Progression Year 1

	Computer Science			Information Technology	Digital Literacy	
Statement	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.
Outcome	Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand	Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code.	When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program	Children can sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work. They can follow simple instructions to access online resources, using tools in Purple Mash to design and create content	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can distinguish between objects that use modern technology and those that do not, e.g., a microwave vs. a chair.	Children know to tell a trusted adult if something online worries them and understand the importance of kindness and respect. They learn how to stay safe online, including using passwords to protect personal information and accounts.

Computing Progression Year 2

	Computer Science			Information Technology	Digital Literacy	
Statement	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.
Outcome	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.	Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps.	Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause-and-effect sentence of what will happen in a program.	Children demonstrate an ability to organise data using a database (2Investigate) and can retrieve specific data for conducting simple searches. Children are able to use and edit more complex digital data, such as creating music compositions and artwork. Children are confident when creating, naming, saving and retrieving content.	Children can effectively retrieve relevant, purposeful digital content using key words in a search engine. They recognise that their work belongs to them and how it can be saved and retrieved. Children make links between technology they see around them and how they can be used for communication and other functions.	Children know to tell a trusted adult if something online worries them and understand the importance of kindness and respect. They recognise that people may act differently online and that technology can be beneficial but may also affect health and mood.

Computing Progression Year 3

	Computer Science				Information Technology		Digital Literacy
Statement	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 concern about content and contact.
Outcome	Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it from following the desired algorithm and then fix it.	Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.	Children's program designs show that they are thinking about the program's structure in logical, achievable steps and are absorbing new knowledge about coding structures. For example, repetition and the use of timers. They make good attempts to 'step through' more complex code to identify algorithmic errors and correct them.	Children recognise the main component parts of hardware that allow computers to join and form a network. They demonstrate that they can communicate safely by using email and adding attachments.	Children can carry out simple searches to retrieve a variety of digital content. They can use this to obtain information about their interests, as well as use tools to narrow their searches. They understand that to do this, they are connecting to the internet by using a search engine such as Kiddle and other child-friendly internet-wide search engines.	Children can collect, analyse, evaluate and present data and information using a branching database (2Question). They can create and plan simple animations with a narrative.	Children begin to understand online identity and who to trust. They know passwords protect their identity and that technology can affect health if misused. They recognise age restrictions, respect ownership of others' work, and can identify online bullying and how to seek support.

Computing Progression Year 4

	Computer Science				Information Technology		Digital Literacy
Statement	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 concern about content and contact.
Outcome	When children are turning a real-life situation into an algorithm (using Scratch) the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.	The use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'IF statements' and attempt to combine these with other coding structures, including variables, to achieve the effects that they design in their programs. They are beginning to use and manipulate the value of these variables.	Children's program designs show that they are thinking about the program's structure in logical, achievable steps and absorbing new knowledge about coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use methods to identify errors and make logical attempts to correct them. Using Scratch, they can 'read' programs with several steps and predict the outcome accurately	Children learn what understand what Artificial Intelligence (AI) is and some of the tasks it can carry out. They learn that they can communicate effectively with AI tools by writing clear and precise prompts, as well as how to be a good digital citizen when using AI.	Children understand the function, features and layout of a search engine. They can describe how to search for information within a group of technologies and make a judgment about the credibility of the information at a basic level. They are able to use their searches to research and create digital presentations.	Children are given access to their School Google accounts and learn how to develop documents and presentations. They demonstrate that they can make improvements to their digital content based on feedback. Children demonstrate that they can make informed software choices when presenting information and data.	Children learn to make responsible choices about their online identity and build a positive reputation. They understand the importance of asking permission before sharing others' content and how to be respectful online. They are beginning to understand why online bullying happens. They can explain the importance of keeping personal information private and know to use privacy settings.

Computing Progression Year 5

	Computer Science				Information Technology		Digital Literacy
Statement	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 concern about content and contact.
Outcome	Children may attempt to turn more complex situations into algorithms for a program (Scratch or Purple Mash) by deconstructing them into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug, but may need some support in identifying the specific line of code.	Children can translate algorithms that include sequence, selection and repetition into code with increasing ease. Their own designs show that they are thinking of how to accomplish the set task in code, utilising previously learnt skills. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.	When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of blocks in Scratch to organise code and the naming of variables	Children develop an understanding of the history of computing and what a LAN is.	Children are beginning to consider their audience when designing and creating digital content such as blogs, spreadsheets, art and photography. They understand that some online information can be misleading and develop a healthy sense of scepticism. They also know when it is appropriate to use others' work and can justify their choices.	Children are able to make appropriate improvements to digital solutions (photographs, art, blogs) based on feedback received and can confidently comment on the success of the solution. Children can collaboratively create content and solutions using digital features within software, as well as explore ways to share digital content	Children learn to build a positive online reputation and understand that people may present themselves differently online. They recognise that content may matter differently to others, so they must consider peoples feelings and seek permission before sharing. They also explore how technology can affect sleep and learn how to create and manage secure passwords.

Computing Progression Year 6

	Computer Science				Information Technology		Digital Literacy
Statement	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 concern about content and contact.
Outcome	Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way. They can use their knowledge of coding structures and apply skills from previous programs. They can test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to finding the issue.	Children can translate algorithms that include sequence, selection and repetition into code. Their own designs show that they are thinking of how to accomplish the set task in code, utilising nesting structures within each other. Their coding displays an improving understanding of different variables and outputs, such as sound and displays, as well as using external controllers i.e BBCMicro:bits and Robotics.	Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. They can use flowcharts to help them test and debug existing simulations, building up to developing a text-based adventure game.	Children understand and can explain the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the Internet in school. They understand what the components in a BBC:Micro:bit do and build their knowledge around the different components of a computer and how it works.	Children can demonstrate how to use filters when searching for digital content. They can find and access content with a Creative Commons licence, which they know can be used freely for school work. They are able to explain how credible a webpage is and be discerning regarding the information it contains.	Children develop an understanding of how to make 3D designs using TinkerCad and develop their ability to innovate and design products. They are able to gather and collate information using Google Forms and analyse and present their findings.	Children can explain how people present themselves differently online and why some may pretend to be others. They recognise respectful and disrespectful behaviour, support others, and understand that they need balance their time online and manage online pressures. They can identify and avoid scams, know that online activity is not fully private, and use strategies to protect their digital reputation, including when to seek help or tell a trusted adult.

