Skill Progression in Computing at Key Stage 1

National Curriculum

- Understand what algorithms are
- 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.

YEAR 1

Digital Literacy	Computer Science	Information Technology
• Choose a piece of technology to do a job • Identify the main parts of a computer • Use a keyboard to type their name on a computer • Turn on the computer and log on with an aid • Use a mouse in different ways – click, select and drag • Use the keyboard to edit text and delete letters • Demonstrate that they can use technology safely **E-Safety** I know to close the laptop lid or turn the tablet over if I find content, such as inappropriate images, which might disturb me or other children. I know to tell their teacher or their parents if this happens.	• Predict the outcome of a command on a device • Run a command on a floor robot • Choose a command for a given purpose • Choose a series of words that can be enacted as a program • Build a sequence of commands in steps from a given starting point • Combine commands in a program • Run a program on a device • Debug a program to correct errors • Predict the outcome of a command • List commands that can be used on a device • Match a command to an outcome • Recognise how to run a command • Run different commands for different sprites • Choose a command for a given purpose • Build a sequence of commands in steps • Use the start command to initialise a program • Debug a program	• Choose appropriate paint tools to recreate a picture • Use freehand tools, changing the colour and brush size • Use shape and line tools for precision, changing the size, shape and colour • Use the undo button to correct mistakes • Use the fill tool to colour an enclosed area • Group the same objects in more than one way • Count how many objects are in group and identify which has more • Record how many objects are in a group • Group objects to answer a question • Compare objects to group them explaining what has been found • Recognise some keys and use them to enter text on to a computer/device including some basic punctuation • Add spaces between most words using a space bar • Use the backspace key to delete text only as far as the section to be edited • Use the toolbar to find and use the bold, italic, and underline tool

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YEAR 2	Digital Literacy	Computer Science	Information Technology
	• I can identify examples of computers • I can describe some uses of computers • I can sort school IT by what it's used for • I can recognise common types of technology • I can demonstrate how IT devices work together • I can identify the choices that I make when using IT • I can say how rules keep me safe	• Follow sequences of instructions including moving forwards and backwards, and turning left and right. • Plan a series of instructions for someone else to follow • Plan a mat layout with several possible route • Plan and execute a program to reach a goal and debug as needed • Write and run a simple program with a start block, and an end block which changes the background • Adapt a given design to create a program with multiple sprites and backgrounds which uses the blocks given in the example • Create and program a quiz with at least two backgrounds which switch based on an action • Identify errors in their program, and debug them	• Take a photograph using a simple camera or device that has been set up in camera mode • Identify some of the reasons why a photograph may be good or bad • Experiment when taking photos with different light sources • Identify a photo that has been enhanced using tools when asked questions • use different tools to change how a photograph looks • I can record data in a tally chart • I can enter data onto a computer • I can use a computer to view data in a different format • I can use a tally chart to create a pictogram • I can answer 'more than'/'less than' and 'most/least' questions • I can collect the data I need • I can give simple examples of why information should not be shared • Create and follow a rhythm pattern using two different instruments • Use the computer to generate different sounds represented by images • Create a sequence of notes on the computer and start to refine them • Create a sequence of notes that use rhythm and tempo to link with a chosen animal, refining their work

Skill Progression in Computing at Key Stage 2

National Curriculum

- design, write and debug programs that decomposing
- use sequence, selection, and repetition
- 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.

YEAR 3

Digital Literacy	Computer Science	Information Technology
• I can explain what makes a secure password • I can classify input and output devices • I can describe a simple process • I can recognise similarities between using digital devices and using non-digital tools • I can explain how messages are passed through multiple connections • I can recognise that a computer network is made up of a number of devices • I can identify networked devices around me	• I can choose relevant backdrops and costumes • I can explain what sequence means and demonstrate it in an algorithm • I can run their code and identify if it meets the requirements of the task • I can explain the relationship between an event and an action • I can choose which keys to use for actions and explain my choices • I can choose a suitable size for a character in a maze • I can program movement • I can use a programming extension • I can choose blocks to set up my program • I can build more sequences of commands to make my design work • I can test a program against a given design • I can match a piece of code to an outcome • I can modify a program using a design • I can implement my design	• I can explain how an animation/flip book works • I can predict what an animation will look like • I can create an effective stop-frame animation • I can describe an animation that is achievable on screen • I can use onion skinning to help me make small changes between frames • I can explain ways to make my animation better • I can explain why I added other media to my animation • I can make up a yes/no question about a collection of objects • I can create a group of objects within an existing group • I can group objects using my own yes/no questions • I can compare two branching database structures • I can create questions that will enable objects to be uniquely identified • I can suggest real-world uses for branching databases • I can use placeholders appropriately to divide the page (magazine) • I can add text and images • I can format some of the text

Skill Progression in Computing at Key Stage 2

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YEAR 4

Digital Literacy	Computer Science	Information Technology
• I can describe the internet as a network of networks • I can discuss why a network needs protecting • I can describe networked devices and how they connect • I can recognise that the World Wide Web contains websites and web pages • I can describe where websites are stored when uploaded to the WWW • I can describe how to access websites on the WWW • I can explain what media can be found on websites • I can explain that internet services can be used to create content online • I can suggest who owns the content on websites • I can explain that not everything on the World Wide Web is true • I can explain why some information I find online may not be honest, accurate, or legal • I can explain why I need to think carefully before I share or reshare content	• I can program a computer by typing commands • I can explain the effect of changing a value of a command • I can write an algorithm to produce a given outcome • I can use a count-controlled loop to produce a given outcome • I can predict the outcome of a program containing a count-controlled loop • I can identify 'chunks' of actions in the real world • I can develop my program by debugging it • I can choose relevant sprites and backdrops for a game • I can create an algorithm that includes show, hide, and move blocks • I can create an algorithm that includes relevant sound blocks	• I can explain the key information that the podcast will include • I can identify the types of sound that will be included • I can include intro, main content, and outro sections in the plan • I can suggest questions that require data from at least one sensor to answer them • I can suggest questions that require data to be collected over time to answer them • I can make statements about what their data shows • I can use their collected data to answer their question • I can select images and combine them into one • I can use a range of tools to create their image • I can add relevant text to their publication

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YEAR 5	Digital Literacy	Computer Science	Information Technology
	• I can describe the input, process, and output of a digital system • I can explain how to keep my personal information safe online • I can compare results from different search engines • I can recognise the role of web crawlers in creating an index • I can relate a search term to the search engine's index • I can explain that a search engine follows rules to rank results • I can recognise some of the limitations of search engines • I can explain how search engines make money	• I can construct a wiring diagram to show how components will be connected • I can build a model that supports the hardware that will be used in the task • I can write an algorithm that uses selection to control a sequence using output devices • I can identify conditions in a program • I can identify the condition and outcomes in an 'if… then… else…' statement • I can explain that program flow can branch according to a condition • I can design the flow of a program that contains 'if… then… else…' • I can use a design format to outline my project • I can test my program • I can identify the setup code I need in my program • I can extend my program further	• I can show sequence and progression with a clear beginning, middle, and end • I can show pictures and notes for all elements and aid the production of the video, with additional, unprompted notes • I can explain how information can be recorded • I can navigate a flat-file database to compare different views of information • I can group information using a database • I can outline how 'AND' and 'OR' can be used to refine data selection • I can refine a chart by selecting a particular filter • I can refine a search in a real-world context • I can choose an item in the classroom and consider how it's relevant to the task • I can manipulate an object's size, colour, and proportion to represent a chosen artefact • I can move objects to different layers to create a specific aspect of a drawing • I can group objects to make them easier to work with

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YEAR 6	Digital Literacy	Computer Science	Information Technology
	• I can explain that internet devices have addresses • I can explain that data is transferred over networks in packets • I can send information over the internet in different ways • I can identify that there are a variety of ways to communicate over the internet • I can decide when I should and should not share information online • I can explain that communication on the internet may not be private • I can explain how to report inappropriate content online	• I can identify examples of information that is variable • I can explain that the way a variable change can be defined • I can identify a program variable as a placeholder in memory for a single value • I can explain that a variable has a name and a value • I can make use of an event in a program to set a variable • I can create algorithms for my project • I can choose a name that identifies the role of a variable • I can use variables to extend my game	• I can make a layout containing multiple sections • I can ensure layouts relates to a relevant purpose • / audience • I can use copyright-free images • I can ensure design is clear and organized • I can suggest how to structure my data • I can choose an appropriate format for a cell • I can construct a formula in a spreadsheet • I can create a formula which includes a range of cells • I can explain why data should be organised • I can use a chart to show the answer to a question • I can identify what will be displayed and how the user will see it • I can choose an appropriate name for a variable • I can choose when and where to set a variable • I can create an algorithm to describe how the program will process each input • I can consider some ethical principles in designing AI systems • I can train a neural net to classify images. • I can train a neural net to classify images • I can train a machine learning system to identify sentiments