

Computing – Progression Map



| | 2-Year-Olds/ Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
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| Computer Science - unplugged | n/a | n/a | <p>Understand what algorithms are.</p> <p>Understand that algorithms are implemented as programs on digital devices.</p> | <p>Understand what algorithms are.</p> <p>Understand that algorithms are implemented as programs on digital devices.</p> | <p>Solve problems by decomposing them into smaller parts</p> <p>Use logical reasoning to explain how some simple algorithms work.</p> | <p>Solve problems by decomposing them into smaller parts.</p> <p>Use logical reasoning to explain how some simple algorithms work.</p> | <p>Solve problems by decomposing them into smaller parts.</p> <p>Use logical reasoning to explain how some simple algorithms work.</p> <p>Detect and correct errors in algorithms and programs.</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</p> | <p>Solve problems by decomposing them into smaller parts.</p> <p>Use logical reasoning to explain how some simple algorithms work.</p> <p>Detect and correct errors in algorithms and programs.</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</p> |
| Computer Science – Coding & Programming | n/a | n/a | <p>Understand that programs execute by following precise and unambiguous instructions.</p> <p>Create simple programs.</p> <p>Debug simple programs.</p> | <p>Understand that programs execute by following precise and unambiguous instructions.</p> <p>Create simple programs.</p> <p>Debug simple programs.</p> | <p>Detect and correct errors in algorithms and programs.</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical</p> | <p>Detect and correct errors in algorithms and programs.</p> <p>Design, write and debug programs that accomplish specific goals, including controlling or</p> | <p>Use sequence, selection and repetition in programs.</p> <p>Work with variables.</p> <p>Work with various forms of input and output.</p> | <p>Use sequence, selection and repetition in programs.</p> <p>Work with variables.</p> <p>Work with various forms of input and output.</p> |

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| | | | | Use logical reasoning to predict the behaviour of own programs. | systems. Use sequence, selection and repetition in programs Work with variables. Work with various forms of input and output. | simulating physical systems. Use sequence, selection and repetition in programs. Work with variables. Work with various forms of input and Output. | | |
| Computer Science - Skills | n/a | n/a | <p>I can physically follow instructions.</p> <p>I can give others instructions to move around.</p> <p>I can predict outcomes from sequences.</p> <p>I can begin to identify an algorithm to achieve a specific purpose.</p> <p>I can create an algorithm to execute a program on a digital device.</p> <p>I am beginning to predict what will happen for a short sequence of instructions in a program.</p> <p>I am beginning to use software to create movement</p> | <p>I can physically follow instructions including turns (right angle).</p> <p>I can create an algorithm for a specific purpose.</p> <p>I can sequence and programme a digital device specifying distance and turns and drawing a trail.</p> <p>I can predict what will happen and test results.</p> <p>I can use software to create movement and patterns on a screen.</p> <p>I can talk about similarities and differences between physical</p> | <p>I can plan and enter a sequence of instructions on a robot/sprite to achieve specific outcomes.</p> <p>I can test and improve/debug programmed sequences.</p> <p>I can use loops (repeat/forever) to achieve solutions to tasks I can use computational thinking to solve open-ended problems.</p> <p>I can talk about algorithms planned by others and identify any problems and the expected outcome.</p> <p>I can explain how algorithms work, predicting</p> | <p>I can plan and enter a sequence of instructions on a robot/sprite to achieve specific outcomes.</p> <p>I can test and improve/debug programmed sequences.</p> <p>I can use broadcast/receive to link sprites and stage I can use selection (if-else) blocks to give different outcomes.</p> <p>I can use an algorithm to sequence and order more complex programming.</p> <p>I can explain how algorithms work, predicting outcomes and debugging.</p> | <p>Explore/ refine procedures using repeat to achieve solutions to problems.</p> <p>Explore instructions to control software or hardware with an input using 'if then' commands.</p> <p>Explore a simulation to then control a physical system using inputs and different outputs.</p> <p>Identify problems and identify a solution for a program.</p> <p>Write down the steps required to achieve the outcome that is wanted and refer to this when programming.</p> | <p>Record in some detail the steps that are required to achieve an outcome.</p> <p>Predict the outputs for the steps in an algorithm.</p> <p>Use the process: plan, program, test and review a program.</p> <p>Write a program that follows an algorithm to solve a problem and achieve a planned outcome.</p> <p>Group commands as a procedure to achieve a specific</p> |

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| | | | <p>and patterns on a screen.</p> <p>I can use Computer Science vocabulary accurately.</p> | <p>devices and onscreen robots.</p> <p>I can use the word debug to correct any mistakes and explain what I have done.</p> <p>I can experience a range of control devices such as a microscope, sound recorders, cameras, and other devices.</p> | <p>outcomes and debugging.</p> | <p>I can create and edit procedures using commands such as pen up, pen down and change direction.</p> | <p>Predict the outputs for the steps in an algorithm.</p> <p>Use the process: plan, program, test and review.</p> <p>Write a program that follows an algorithm to solve a problem for a digital device.</p> <p>Group commands as a procedure to achieve a specific outcome within a program.</p> <p>Understand how sensors can be used to measure input to activate a procedure or sequence and talk about applications in society.</p> | <p>outcome within a program.</p> <p>Control on-screen mimics and physical devices using one or more input and predict the outputs.</p> <p>Understand how sensors can be used to measure input to activate a procedure or sequence and talk about applications in society.</p> |
| Vocabulary | | | <ul style="list-style-type: none"> • Instructions • Algorithm • Predict • Sequence • Execute • Program • Digital device • Software | <ul style="list-style-type: none"> • Specific purpose • Physical device • Onscreen robot • debug | <ul style="list-style-type: none"> • Sprite • Test • Loops • Repeat/forever • Computational thinking • Outcome | <ul style="list-style-type: none"> • Broadcast • Receive • Selection • If/else • Complex programming • Procedures • Commands | <ul style="list-style-type: none"> • Repeat • Input • If/then • Simulation • Physical system • Review | |
| Digital Literacy - Skills | n/a | n/a | <p>I can access a website and navigate around it.</p> <p>I can recognise how I use technology in my</p> | <p>I can use a search engine to find information using agreed keywords.</p> <p>I can navigate to a website by</p> | <p>I can use an age-appropriate search engine independently.</p> <p>I understand plagiarism when</p> | <p>I can use an internet search to answer questions on a topic and know there are different search engines available</p> | <p>Use the internet as a tool for research</p> <p>Choose the most appropriate search engine for the task, refining as necessary</p> | <p>I can explain the differences between a network, the internet and the world wide web</p> |

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| | | | <p>home and at school.</p> <p>I am beginning to evaluate websites by giving opinions.</p> <p>I know strategies if I see something inappropriate on a website and/or digital device.</p> <p>I understand that passwords should be kept private.</p> <p>I know that online communication is not always true.</p> <p>I own my work by adding my name and data.</p> <p>I respect the work of others stored on a shared drive (online).</p> <p>I can publish my work online.</p> | <p>entering a simple web address.</p> <p>I know about the risks of advertising or pop-up windows.</p> <p>I understand that some information online may be untrue.</p> <p>I can keep my password secret.</p> <p>I can contribute to online class blogs.</p> <p>I understand the need to be respectful online.</p> <p>I know that I need to check the information before uploading.</p> | <p>using copy/paste from a webpage.</p> <p>I know the difference between fact, fiction and opinion online.</p> <p>I can explore and discuss the benefits of a range of online communication tools.</p> <p>I know how to respond to unpleasant communications .</p> <p>I understand the need to keep personal information private and am responsible in my online presence.</p> <p>I can create and use a basic email service.</p> <p>I know the difference between personal, private and public online spaces and the risks associated with these.</p> <p>I understand that there are rules about using public</p> | <p>I can use different search engines and their features, e.g., Google Image Search, video, sound etc.</p> <p>I can understand copyright issues – what images/videos / sounds are legal and safe to use.</p> <p>I know that websites are not always accurate, and that information should be checked before it is used.</p> <p>I understand some of the risks and rewards involved in publishing online and know how to keep safe.</p> <p>I can recognise the effect that their writing or images may have on others and respect the ideas and communications of others/ they encounter online.</p> <p>I know that I need to have the appropriate permission for use of images.</p> | <p>Recognise reasons that people might publish inaccurate content and check validity.</p> <p>Identify and ignore/cancel unwanted advertising and malicious downloads in the form of, popups, video, banners, hyperlinked objects.</p> <p>Identify whether a file has copyright or can be legally downloaded and whether these can be used in their own work.</p> <p>Discuss the differences between an open blog and a forum for a closed community.</p> <p>Understand that you should not publish other peoples' material without their permission.</p> <p>I can explain in simple terms the differences between a network, the internet and the world wide web.</p> | <p>Decide which online communication tool to use to best suit the purpose.</p> <p>I know that computers use IP addresses to identify each other.</p> <p>I use specific vocabulary: server, digital data, binary code, URL.</p> <p>I can explain how search engines work, finding and ranking pages in order.</p> <p>I can use a range of sources to check the validity and recognise different viewpoints.</p> <p>Describe the possible impact of published content to an audience e.g., the use of advertising.</p> <p>Know the meaning of some common website</p> |
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| | | | | | spaces online. | | | extensions – such as .com. |
| Vocabulary | | | <ul style="list-style-type: none"> • Website • Navigate • Technology • Evaluate • Inappropriate • Passwords • Online communication • Data • Shared drive • Online • Publish | <ul style="list-style-type: none"> • Search engine • Key words • Web address • Pop up • Windows • Blogs • Uploading | <ul style="list-style-type: none"> • Age appropriate • Plagiarism • Copy/paste • Online presence • Email | <ul style="list-style-type: none"> • Copyright | <ul style="list-style-type: none"> • Validity • Malicious downloads • Popups • Banners • Hyperlinked objects • Open blog • Closed forum • Network • World wide web | <ul style="list-style-type: none"> • IP address • Server • Digital data • Binary code • URL • Ranking • Website extensions • https |

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| <p>Information Technology - Skills</p> | <p>n/a</p> | <p>n/a</p> | <p>I can create audio using digital instruments and recordings.</p> <p>I can create/edit an image using a range of 'tools' both on and offline.</p> <p>I can use a keyboard effectively.</p> <p>I can use a word bank for help and use online spelling tools.</p> <p>I can add text to photographs and pictures.</p> <p>I am beginning to explain reasons why I have made choices to a teacher or talk partner.</p> <p>I can save my work to the appropriate location.</p> <p>I am beginning to retrieve my work.</p> <p>I can print work and pictures.</p> <p>I can make a pictogram and understand what it</p> | <p>I can create audio using digital instruments and recordings.</p> <p>I can create/edit an image using a range of 'tools' both on and offline including 'undo' and 'redo'.</p> <p>I can word process short pieces of text including the use of formatting tools.</p> <p>I am beginning to explain reasons why I have made choices to a teacher or talk partner.</p> <p>I can save, print, retrieve and edit my work.</p> <p>I can find my work to open or print it.</p> <p>I can use and add to a branching database to find objects using.</p> | <p>I can create and insert music and sounds into presentations and documents.</p> <p>I can create and manipulate digital artwork.</p> <p>I use reasoning about the quality and composition of images.</p> <p>I can perform basic editing on images/video – crop, recolour, resize.</p> <p>I can use numerous design features such as text boxes, borders and WordArt in different layouts and styles.</p> <p>I can use a variety of presentation software to make a sequence of slides.</p> <p>I can add to, sort, and search a database (including branching).</p> <p>I can interrogate a simple database to answer questions and</p> | <p>I can add information and use the 'field' function within a database.</p> <p>I can sort record cards by using field names and use a database to find the answer to simple questions.</p> <p>I can use the search tool find information and search for answers to simple questions.</p> <p>I can create simple bar charts and use them to answer questions.</p> <p>I can use a branching database to identify objects and add additional objects to an existing branching database.</p> <p>I can select colour, cell size and text appropriately.</p> <p>I can save and retrieve documents from</p> | <p>I can use 'AND', 'OR', '<=' and '>=' to search a database.</p> <p>I can design questions to search a large database.</p> <p>I can check for accuracy by checking data, using different views, search tools and graphing.</p> <p>I can build and use databases to support my work.</p> <p>I can enter formulae into a spreadsheet and modify the data, (simple calculations + -/ x total).</p> <p>I can make predictions and changes and check results.</p> <p>I can use 'SUM' to calculate the total of a set of numbers in a range of cells.</p> <p>I can create graphs and charts from data in a spreadsheet.</p> | <p>I can copy cells and formulae using copy & paste, and fill across and down.</p> <p>I can display and interpret data selecting bar charts, pie charts, scatter graphs and line graphs appropriately.</p> <p>I can match the information in a spreadsheet to the needs of the audience and present data, with appropriate ranges, labelling axes and title.</p> <p>I can create and amend a spreadsheet to solve a problem through a review of the rules and variables.</p> <p>I can use databases and branching databases to process, interpret, store, and present information for</p> |
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| | | | shows. | | create charts from the data. | shared areas using sensible names. | | a specific audience. |
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| | | | I understand that technology can help to create and edit a range of document styles. | | <p>I can use spreadsheet cell references I can format cells and text appropriately.</p> <p>I can use a data logger to capture measurements over time.</p> | I can use data loggers to capture information to use over time. | <p>I can use spreadsheets to answer 'what if...?' questions and check predictions.</p> <p>I can investigate changes in sound, light and/or temperature levels using data logging, using continuous logging, snapshot functions and logging over time.</p> | <p>I can identify the need for accuracy and check the plausibility of the information I find online.</p> <p>I can identify opportunities to use data logging to support my work.</p> <p>I can use data logging devices to investigate changes in the environment over time.</p> <p>I can use graphical information to answer questions and solve simple problems.</p> |

Vocabulary

- Create
- Audio
- Edit
- Image
- Tools
- Keyboard
- Text
- Save
- Print
- Pictogram
- Document

- recordings
- Undo
- Redo
- Word process
- Format
- Retrieve
- Branching database
- Collaborate

- insert
- Sounds
- Presentation
- Crop
- Recolour
- Resize
- Design features
- Text box
- Borders
- Software
- Sort
- Search
- Interrogate
- Charts
- Spreadsheet
- Cell
- Data logger

- function
- Field
- Record cards
- Field names
- Shared area

- AND
- OR
- =<
- =>
- Formulae
- SUM
- Continuous logging
- Snapshot functions

- Fill across
- Fill down
- Ranges
- Labelling
- Axes
- Title
- Variables
- Process
- Interpret data
- Specific audience

