

KS1		Computer Science • 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	Information Technology • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school	Digital Literacy • 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	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year One	• To know how to switch a range of digital devices (computer/laptops) on and off • Load programs (office, apps) with support/open and close apps • Use a mouse pad to navigate an age-appropriate website/know how to navigate programmes • Use a mouse pad to select/drag/position an object or window to talk about what they are doing with Computers/Digital Media using appropriate vocabulary according to equipment available e.g screen/keyboard/laptop/computer/mouse/headphones	• To explore a range of control toys and digital devices (BeeBots/microphones/laptops) • To follow instructions to move around to complete a simple task • To give a sequence of instructions to complete a simple task (ScratchJR/Scratch) • To record instructions simply using pictures • To understand that instructions should be given clearly and in the correct order) • To talk about what will happen when instructions are given in a sequence • to navigate a sprite/BeeBot around a course (ScratchJR/Scratch)	• To use a digital device to take a picture or record their work (digital camera) • To select or record a sound to add to their work (Scratch) • To be familiar with a keyboard • To select images on a computer/laptop • To begin to type sentences (with support using capital letters, full stops and other punctuation • To use a paint package to a create a picture (paint) • To use pre-defined layouts or templates for presentation • To know other uses for ICT outside of school • To discuss examples of other ICT uses.	• To know that we can communicate online (email/text) • To contribute ideas to a class email or respond to a message • To create a story to combine words, pictures, sounds and animations (ppt) • Use simple writing tools to create their own content (office/purple mash) • Follow age-appropriate links provided by the teacher to research information • With support, use sound recording tools to convey a simple message • To sort objects into groups according to the criteria

	• Online Safety & Exploring Purple Mash • Grouping & Sorting • Pictograms • Lego Builders • Maze Explorers • Animated Story Books • Coding • Spreadsheets • Technology outside	• Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program • 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 overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.	• Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	• Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair. • Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash
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	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year Two	• To develop awareness of keyboard layout and use of a mouse e.g. use the mouse or arrow keys to insert words and sentences • To know backspace/undo/ • shift for capital letters/enter/upload • Changing font/ size/colour and style of text. • typing skills (use two hands when typing) • Logging on/off digital devices use navigation skills to access appropriate parts of a website/ simple program/ app	• Understand that programs use precise instructions to work • Create simple programs and find bugs in them. • Predict outcomes of their algorithms and programs • To know how to control a range of digital devices • To know that devices and actions on screen may be controlled by sequences of actions and instructions • To create a sequence of instructions to complete a simple task (move a BBot/create a simple shape) • To control a floor robot using appropriate buttons (BeeBots) • To make predictions about what will happen when a command is entered • To discuss how to improve/change their sequence of commands. • To know the purpose of a range of digital devices: laptops/cameras/computers • To begin to answer 'What if' questions using a simulation (ScratchJr/Scratch to know the difference between input/output devices	• To develop basic editing skills e.g. shift key for upper case, question marks, spaces after punctuation. • To know how to improve the presentation of a piece of work by changing the font size, colour and style • To use different layouts and templates for different purposes (e.g. story/newspaper /poster) • To understand that folders are used to organise files on a computer • To organise files and folders by creating, renaming, moving, copying and deleting • To combine graphics, text and sound to enhance their text (PPT/Word) • To use a sound recording tool to record voice for a specific purpose (Scratch/PPT) • To create a simple animation to illustrate a story or idea (Scratch/ScratchJr) • To upload an image	• To compare the different ways that messages can be sent e.g email/text /telephone/letter and start to consider their advantages and disadvantages • To contribute and respond to an e-mail (with support from teacher) • to look and talk about other people's contributions online (padlet/prezi/Scratch) • To consider who can see their contributions on scratch/padlet • To know that stories can be shared in different ways (photos/video/animation) • To create/use own pictograms/graphs (purple mash) • To create QR codes (goo.gl) • To access websites and documents using QR codes • To enter/save and retrieve pictures and text

	• Coding • Online Safety • Spreadsheets Questioning • Effective Searching • Creating Pictures • Making Music • Presenting Ideas	• 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, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including phot	• Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. • Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. • Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.
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KS2		Computing Science • 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	Information Technology • 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	Digital Literacy • 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.
	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year Three	• To upload from digital devices and the Internet to a shared space (Class folders/Chn's Folder) • To know that they can access their work from any school computer by logging on to their Folder/Network Area. • Open/edit and save their work in own space • To insert/cut/ copy/paste • Use ctrl+v and ctrl+c to copy and paste • To use 'save as' to create another version of their work • To develop further basic drafting skills: • Insert words or sentences.	• To develop an understanding of how technology works and how computers process instructions and commands. • To create/edit and refine more complex sequences of instructions for a variety of programmable devices e.g. using the repeat command • To use a computer to create basic applications, investigating how different variables can be changed and the effect this has • To understand that computer simulations can represent real life situations. • To use simulations to represent real life situations	• To use still and digital cameras • To know what makes a good photo (hold the camera steady/point at people's faces/to discuss the quality of their image and make decisions (e.g. delete a blurred / bad image) • To download images and video • To select suitable sounds (including recording with a microphone) • To recognise and use key features of layout and design such as text boxes, columns, borders, WordArt • Explore and begin to use more advanced features in a paint package, eg colour picker, colour replacer	• To reply to an email independently • To evaluate a range of printed and electronic texts, appropriate to task e.g newspaper, poster, webpage and recognise key features of layout and design • To organise and present information for a specific audience • To begin to experience forms of online discussion: such as blogs, wikis, quizzes, surveys and google hangouts • To know that ICT enables access to a wider range of information and tools to help find specific information quickly

	• Centre titles. • Change font, font size, colour. • To practice touch typing	• To navigate a programming app • To control a character by dragging commands • To write a simple program/create a simple animation	• Save images and use them as part of other multimedia/ desktop publishing work • To use music software to select/record/organise and reorganise sounds • To locate, record, save and retrieve sounds • to add sounds from different sources. • Sequence still images and use simple editing techniques to create a presentation	• Produce work using a computer, using more advanced features of programs and tools (font sizes) • To work collaboratively to create documents, including presentations • To understand the basic structure of a database • To add data to a pre-made database • To use the data in a pre-made database to generate graphs and charts • To use technology to create graphs and charts • To answer questions by searching and sorting the database
	• Coding • Online safety • Spreadsheets • Touch Typing • Email (inc. email safety) • Branching Databases • Simulations • Graphing • Presenting	• 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 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	• Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines. Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.	• Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact

		rather than a repeat command when creating repetition effects. • Children’s designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, repetition and use of timers. They make good attempts to ‘step through’ more complex code in order to identify errors in algorithms and can correct this. e.g. In programs such as Logo, they can ‘read’ programs with several steps and predict the outcome accurately. • Children can list a range of ways that the Internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way		
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	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year Four	• To use the online dictionary/thesaurus • To use ctrl+alt+prntscrn to take a picture of the whole screen and paste it into paint to adapt it. • Use windows snipping tool to capture and annotate work • Continue to practice touch typing • Use more than two fingers to type • To develop further basic drafting and editing skills • Edit and top copy literacy work using Word/PPT/Publisher	• To understand that ICT allows for situations to be modelled which it would be impractical to try out in real life • To investigate the effects of changing variables in these simulations • To develop their understanding of how technology works and how computers process instructions and commands • To create a program which can be controlled by external inputs	• To evaluate a range of digital media, appropriate to task e.g websites • To plan structure and layout of document/presentation • To improve presentation of a document by laying it out effectively • To select and import images from digital cameras and graphics packages • Select and import sounds (eg own recording) and video/ visual effects • Through peer assessment and self-evaluation, evaluate work both during	• To open/read, and reply to email (independently) • To collaborate to create a document, giving thought to its audience and including links/images/embedded media (PPT) • To understand that ICT allows us to make improvements to our work quickly and efficiently. • To continue to use technology to create graphs and present data in different ways.

	• Use spell checker • delete, insert and replace text using mouse or arrow keys	(Scratch) e.g to program their character to navigate their 3D world with an input using control device • To change algorithms/conditional statements and investigate the effect this has e.g use of 'if' and 'then'	and after completion, and make suitable improvements • To develop an increasing awareness of intended audience. • To import a photograph and explore the effects which can be created • To select areas and manipulate to give different effects. • To capture video clips to communicate their ideas • To cut and reorganise digital video • To use a timeline to organise frames of video footage • To add text, sound effects and other graphic effects • To select from your best work to save and share (presentation, class folder) • To use at least two online communication methods in topic work (blogs/emails etc.) • To discuss advantages and disadvantages of these communication methods • To start to think about the different styles of language layout and format of online communications sent to different people (eg. when it is appropriate to use "text language"). • To begin to experience forms of online discussion: such as blogs, wikis, • Start new threads and contribute to others relevant to the topic; consider relevance of contributions	• To design and create a basic database • To use a database to answer questions that have been constructed • To enter data into a spreadsheet • To change data and observe changes in results
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	• Coding • Online Safety • Spreadsheets • Writing for Different Audiences • Logo • Animation • Effective Searching • Hardware Investigators • Making Music	• When turning a real-life situation into an algorithm, 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. Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. • They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. • Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. In programs such as Logo, they can 'read' programs with several steps	Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community i.e. using Virtual Display Boards.	• Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact
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		and predict the outcome accurately. Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.		
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	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year Five	• To be able to use an online dictionary/thesaurus to search out level specific grammar and vocabulary independently • To use a variety of techniques to save and annotate on screen projects (screenshots/snipping) • To find, save, crop and edit images to suit needs of projects • Continue to practice touch typing and use several fingers when typing • Use spellchecker and grammar checker to ensure consistency throughout work	• To begin to develop understanding of how technology works; how computers process instructions and commands, including the use of coding languages. • To experience a selection of coding environments (Scratch, Code.org) • To design their own game including sprites, backgrounds, scoring and/or timers. • To use conditional statements to create unique algorithms • Begin to understand the history of Computer Science • Use variables to add variation to algorithms • To program start and ends to games involving wins, losses and draws • To create variable interaction in quizzes and games using a combination of selection, conditional statements and variables (Data blocks in scratch) • To evaluate the effectiveness of their algorithms • To continually debug code to identify and correct errors, exceptions and exploits	• To use presentation software and skills to present work or information relating to their learning. • To evaluate a range of digital media, appropriate to task e.g website, prezi, blog, pdfs and recognise key features of layout and design and relate to other curriculum areas (Reading/Writing/Topic) • To select software to support structure and layout of document/presentation • To improve presentation of a document by considering its target audience • To select and import graphics from digital cameras, graphics packages and online sources • To select and import sounds (eg own recording, free online sources) video/visual effects • Through self-evaluation, evaluate projects both during and after completion, and make suitable improvements • To develop projects with an awareness of intended audience • To capture video clips to communicate ideas and information to specific audiences • To edit, reorganise and enhance digital video for a specific purpose or audience • To begin to produce a portfolio of written and visual work and projects for sharing with other children inside and out of school	• Use technology to present their work, showing an increasing degree of skill and using advanced software • To use different filming techniques and camera angles e.g. zoom, panning, wide shot etc. to create different mood/perspective • To plan a video or animation by drawing a storyboard (Storyboard It) • To use a range of sound effects, music and voice-overs to create mood/ atmosphere • To select and edit sounds, text, movie clips and other effects to suit purpose and audience • Begin to recognise that the internet may contain material that is irrelevant, bias and inappropriate. • Begin to understand how issues of copyright apply to their own work • Begin to understand the different type of copyright pertaining to digital medias

			• To use online communication methods to support topic work • To consider language, layout and format when communicating with different people online	
	• Coding • Online Safety • Spreadsheets • Databases • Game Creator • 3D Modelling • Concept Maps • Word Processing	• Children may attempt to turn more complex reallife situations into algorithms for a program by deconstructing it 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 identifying the specific line of code. • Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. 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 tabs to organise code and the naming of variables • Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most	• Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains. • Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.	Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.

		appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.		
	Key Skills And Purple Mash Unit	Computer Science	Information Technology	Digital Literacy
Year Six	• To continue to build on Yr5 key skills • To select suitable software to edit and redraft written work • Use a variety of keyboard shortcuts to improve efficiency on computing systems	(Building on Yr5 work) • To continue develop understanding of how technology works; how computers process instructions and commands, including the use of coding languages. • To experience a variety of coding environments (Scratch, Code.org) • To show an understanding of the history of computing and computer science. • To design their own game including sprites, backgrounds, scoring and/or timers. • To use conditional statements to create unique algorithms • Use variables to add variation to algorithms • To program start and ends to games involving wins, losses and draws • To create variable interaction in quizzes and games using a combination of selection, conditional	(Building on Yr5 work) • Through peer assessment and self-evaluation, evaluate projects both during and after completion, and make suitable improvements • To continue to produce and add to a portfolio of written and visual work and projects for sharing with other children inside and out of school • To engage in a range of online activities including; publishing and sharing work for evaluation and evaluating the work of others.	(Building on Yr5 work) • Use technology to present their work, showing a degree of skill and using advanced software • To use a range of sources to check validity and recognise different viewpoints and the impact of incorrect data • Understand how issues of copyright apply to their own work • Understand the different type of copyright pertaining to digital medias • Recognise that the internet may contain material that is irrelevant, bias and inappropriate. • Save and use pictures, text and sound recognising copyright issues

		statements and variables (Data blocks in scratch) • To evaluate the effectiveness of their algorithms • To continually debug code to identify and correct errors, exceptions and exploits		
	• Coding • Online Safety • Spreadsheets • Blogging • Text Adventures • Networks • Quizzing • Understanding Binary • Spreadsheets	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 using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. Children are	Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication. Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the Internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.	Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people

		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. Children understand and can explain in some depth 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		
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