Our Computing Adventure

Medium Term Overview

Year 1

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Programming and Coding To cover 2 terms.	• Control simple everyday devices to make them produce different outcomes. • Understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. • Know that an algorithm written for a computer is called a program. . Work out what is wrong with a simple algorithm when the steps are out of order. • Write a simple algorithm. • Know that an unexpected outcome is due to the code that has been created and make logical attempts to fix the code. • Read code one line at a time and make good attempts to envision the bigger picture.	Purple Mash Unit 1.5 and Purple Mash Unit 1.7 Also using Bee-Bots Further resources: Daisy the Dinosaur app Kodable Code for Life
Information Technology	Multimedia	Text and multimedia To cover 2 terms.	• Collate, edit and store simple digital content. • Start to use a keyboard to type name and simple texts, changing the font, size and colour of the text. • Save and retrieve work and follow simple instructions to access online resources • Use a range of simple tools in a paint package/image manipulation software to create/modify a picture. • Work with others and with support to contribute to a digital class resource which includes text, graphic and sound. • Choose suitable sounds from a bank to express ideas.	Potentially use Purple Mash Unit 1.6 Resources: 2Publish 2Publish Plus 2Paint 2Paint a picture Picollage app PuppetPals app

	Data	Handling information	• As a class or individually with support, use a simple pictogram or painting program to develop simple graphical awareness/one to one correspondence. • Sort, collate, edit and store simple digital content.	Potentially use Purple Mash Unit 1.3 Resources: 2Count 2Graph Could also cover Purple Mash Unit 1.8 Spreadsheets as well
Digital Literacy	Networks	Understanding Technologies	• Show an awareness that what is created on a computer or tablet device can be shown to other via another device (e.g. printer, projector, iPad mirroring) • Understand what is meant by technology and identify a variety of examples both in and out of school. • Show awareness of the range of devices and tools encountered in everyday life. • Make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair. • Contribute ideas to a class email to another class/ school etc. • Undertake simple searches on the internet. • Talk about different websites and what can be found.	Potentially use Purple Mash Unit 1.9 Resources: Websites & search engines 2Email
	E-safety	Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• As a class exercise, explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). • Show an awareness of different forms of information. • Understand the importance of keeping information, such as usernames and passwords, private and actively demonstrate this in lessons. • Take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash. • Talk about different websites and what can be found.	Lower School AUP Purple Mash unit 1.1 Resources: Know it all website Kidsmart website Thinkyouknow website Be internet legends website Safer Internet Day resources

Topics and Purple Mash Units in purple must be taught.

Units in green are not discreet topics but should be covered throughout the year.

Year 2

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Coding	• Explain that an algorithm is a set of instructions to complete a task. • Show an awareness, when designing simple programs, of the need to be precise with algorithms so that they can be successfully converted into code. • Create a simple program that achieves a specific purpose. • Identify and correct some errors. • Display a growing awareness of the need for logical, programmable steps. • Identify the parts of a program that respond to specific events and initiate specific actions. E.g. write a cause and effect sentence of what will happen in a program. • Control a device, on and off screen, making predictions about the effect the programming will have.	Purple Mash Unit 2.1 Further resources: Bee bots Pro-bot Bee bot app Kodable Code for Life Scratch Jr app
Information Technology	Multimedia	Text and multimedia	• Generate publications and presentations, with help where appropriate with multimedia. • Use a range of media – combining text, graphics and sound. • Confident when creating, naming, saving and retrieving content. • Develop typing skills to enable short sections of text to be typed accurately. • Change font alignment and background to text. • Start to edit and improve creations.	Potentially use Purple Mash Unit 2.8 Resources: 2Type 2Publish 2Publish Plus Picollage app PuppetPals app
		Digital images	• Take and edit digital photographs using simple photo editing programs. • Save, locate and retrieve digital photographs. • Use a range of simple tools in a paint package/ image manipulation software to create/ modify a picture to communicate an idea. • Create a simple animation to tell a story. • Confidently create, name, save and retrieve content.	Potentially use Purple Mash Unit 2.6 Resources: 2Paint a picture 2Animate Pixlr.com
		Sound and music	• Explore electronic music and sound devices. • Compose music from icons. • Produce a simple presentation incorporating sounds that have been captured or created.	Potentially use Purple Mash Unit 2.7 Resources:

	Data	Handling information	• Demonstrate an ability to organise data and retrieve specific data to conduct simple searches. • Use a graphing package to collect organise and classify data, selecting appropriate tools to create a graph and answer questions. • Enter information into a simple branching database, database or word processor and use it to answer questions. • Save, retrieve and edit work.	Potentially use Purple Mash Units 2.3 and 2.4 Resources: 2Graph 2Question 2Investigate
Digital Literacy	Networks	Understanding Technologies	• Effectively retrieve relevant, purposeful digital content using a search engine. • Demonstrate an awareness of how to manage their journey around websites (e.g. using the back/forward button, hyperlinks) • Apply learning of effective searching beyond the classroom and share this knowledge. • Make links between technology seen at home, coding and multimedia work they do in school, interactive code and programs. • Begin to understand how things are shared electronically. • Show an awareness of a range of inputs to a computer (IWB, mouse touch screen, microphone, keyboard, etc.)	Purple Mash Unit 2.5 – Effective Searching Resources: Websites & search engines
	E-safety	Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• Know the implications of inappropriate online searches. • Begin to understand how things are shared electronically. • Develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content. • Begin to show an awareness that computers can be linked to share resources.	Middle School AUP Purple Mash Unit 2.2 Know it all Kidsmart Thinkyouknow Be internet legends website Safer Internet Day resources

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Year 3

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Coding	• Understand what a flowchart is and how flowcharts are used in computer programming. • Experiment with timers to achieve repetition effects in programs. • Understand that there are different types of timers and select the right type for purpose. • Explore and learn how to use the repeat command. • Investigate and understand the importance of nesting. • Design and create an interactive scene. • Identify an error within a program that prevents it following the desired algorithm and fix it.	Purple Mash Unit 3.1 Further resources: Bee bots Pro-bot Bee bot app Kodable Code for Life Scratch Jr app
Information Technology	Multimedia	Text and multimedia	• Develop skills to use a range of software to present information. • Know that a presentation program is used to present information to an audience in an engaging way. • Understand that it can including text, pictures and videos. • Understand the purpose of the Slides tool and add slides to presentations. • Choose and add media to presentations. • Format and position text appropriately. • Add shapes and lines to enhance a presentation. • Use the skills learnt to design and create an engaging presentation.	Potentially use Purple Mash Unit 3.9 Resources: MS Powerpoint MS Word 2Type 2Publish 2Publish Plus Picollage app
		Touch typing	• Introduce typing terminology. • Understand the correct way to sit at the keyboard. • Learn how to use the home, top and bottom row keys. • Practise typing with the left and right hand.	Potentially use Purple Mash Unit 3.4 Resources: 2Type Nessy's fingers?

Information Technology	Data	Handling information 1	• Discuss and understand different forms of data and why it is important to sort and organise it so as to easily find information. • Learn to sort objects using just 'yes' or 'no' questions. • Complete a branching database using 2Question. • Create a branching database of own choice.	Potentially use Purple Mash Unit 3.6 Resources: 2Question 2Investigate
		Handling information 2 (short topic)	• Discuss and understand different forms of data and why it is important to sort and organise it so as to easily find information. • Enter data into a graph and answer questions. • Solve an investigation and present the results in graphic form.	Potentially use Purple Mash Unit 3.8 Resources: 2Graph Data loggers
		Simulations	• Consider what simulations are; explore a simulation and recognise that they can be useful to widen experience beyond the classroom. • Analyse and evaluate a simulation • Use models and simulations to find things out and solve problems. • Recognise that simulations are useful in widening experience beyond the classroom.	Potentially use Purple Mash Unit 3.7 Resources: 2Simple City 2Simulate 2Publish
Digital Literacy	Networks	Understanding Technologies	• Think about different methods of communication. • Open and respond to an email using an address book. • Learn how to use email safely and understand the importance of staying safe. • Add an attachment to an email. • Explore a simulated email scenario. • Know the importance of their conduct when using a communication tool such as 2Email.	Purple Mash Unit 3.5 – Email Resources: Websites & search engines
	E-safety	Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• Know what makes a safe password. • Learn methods for keeping passwords safe and explain why it is important to do so. • Understand how the Internet can be used in effective communication. • Understand how a blog can be used to communicate with a wider audience. • Consider the truth of the content of websites. • Learn about the meaning of age restrictions symbols on digital media and devices.	Middle School AUP Purple Mash Unit 3.2 Know it all Kidsmart Thinkyouknow Be internet legends website Safer Internet Day resources

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Year 4

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Coding	• Begin to understand selection in computer programming, thinking carefully about the required task. • Understand how an IF statement works and how to use co-ordinates in computer programming. • Understand, and use in their algorithms, the 'repeat until' command. • Begin to understand how an IF/ELSE statement works. • Know what a variable is in programming and start to use a number variable. • Use all skills acquired to create a playable game.	Purple Mash Unit 4.1 Resources: Scratch Hour of Code
		Control	• Show an understanding that Logo is a coding language, and how it is structured. • Children are able to input simple instructions in Logo. • Use 2Logo to create letter shapes, moving on to use the Repeat function in Logo to create shapes. • Show an understanding of how to use and build procedures in Logo.	Purple Mash Unit 4.5 Resources: 2Logo Pro-Bot
	Networks & the internet	Understanding Technologies (short unit)	• Understand that different parts that make up a computer and they all have an important function. • Recall the different parts that make up a computer. • Recognise the main component parts of hardware which allow computers to join and form a network.	Potentially use Purple Mash Unit 4.8 Resources: Examples of computers
Information Technology	Multimedia	Text and multimedia	• Know that a multimedia program is used to present information to an audience in an engaging way. • Show an understanding of how Publisher works, that each media item is in a separate 'box' and that those boxes can be layered. • Choose and add media to documents, appropriately positioned. • Edit and manipulate font – size, shape, style – to achieve a particular effect. • Use multimedia programmes to display cross-curricular learning.	Microsoft Publisher Resources: Purple Mash 4.4 Word, Publisher & Powerpoint Picollage 2Tpye Nessy's fingers
		Digital images	• Import digital media into an appropriate photo manipulation software. • Edit digital images using a range of tools to convey a specific mood or idea.	Photo manipulation software 2Draw

		Digital images	Discuss what makes a good animated film or cartoon. • Learn how animations are created by hand. • Find out how 2Animate can be created in a similar way using the computer. • Learn about onion skinning in animation. • Add backgrounds and sounds to animations. • Show an awareness of 'stop motion' animation. • Share animation on the class display board.	Potentially use Purple Mash Unit 4.6 Resources: 2Animate Pivotstick
		Sound and music	• Identify and discuss the main elements of music. • Understand and experiment with rhythm and tempo. • Create a melodic phrase. • Electronically compose a piece of music. • Use sound effects and existing music as well as creating own content. • Make improvements to digital media based on feedback.	Potentially use Purple Mash Unit 4.9 Resources: Busy Beats 2Sequence Audacity
Digital Literacy	E-safety & Networks	Effective Searching (short unit)	• Children can locate information on the search results page. • Show an ability to search effectively to find out information. • Assess whether an information source is true and reliable.	Purple Mash Unit 4.7
		Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• Children understand how they can protect themselves from online identity theft. • Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. • Children identify the risks and benefits of installing software including apps. • Know that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • Identify appropriate behaviour when participating or contributing to collaborative online projects for learning. • Children identify the positive and negative influences of technology on health and the environment. • Know the importance of balancing game and screen time with other parts of their lives.	Upper School AUP Purple Mash unit 4.2 Know it all Kidsmart Thinkyouknow Safer Internet Day resources

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Year 5

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Coding	• Begin to simplify code and create a playable game. • Understand what a simulation is and program a simulation using 2Code. • Know what decomposition and abstraction are in computer science. • Start to take a real-life situation, decompose it and think about the level of abstraction. • Understand how to use friction in code. • Begin to understand what a function is and how functions work in code. • Understand what the different variables types are and how they are used differently. • Understand how to create a string. • Understand what concatenation is and how it works.	Purple Mash Unit 5.1 Further Resources: Scratch Hour of Code Code for Life
		Game Creator	• Plan an interesting game. • Design and create the game environment using imaginative details. • Design and create the game quest; use challenging elements. • Appropriately finish and share the game. • Be able to self and peer evaluate.	Potentially use Purple Mash Unit 5.5 Resources: 2DIY3D Sketch Nation (iPads)
Information Technology	Multimedia	Text and multimedia	• Know what a word processing tool is for. • Explore various different types of word processing software: MS Word, Picollage, Book Creator. • Add and edit images to a word document. • Know how to use word wrap with images and text. • Change the look of text within a document. • Add features to a document to enhance its look and usability. • Use tables within MS Word to present information. • Introduce children to templates in MS Word. • Consider page layout including heading and columns. • Confident use of MS Publisher and Powerpoint to present learning.	Potentially use Purple Mash Unit 5.8 Resources: Book Creator MS Word, Publisher & Powerpoint Picollage 2Tpye Nessy fingers Search engines

		Graphical Modelling	• Explore the benefits and skills of computer aided design, looking at 2Design and Make or Publisher. • Explore the effect of moving points when designing. • Explore auto shapes to achieve different effects. • Design a 3D Model to fit certain criteria. • Manipulate auto shapes to create 2D or 3D models • Refine and print a model.	Potentially use Purple Mash Unit 5.6 Resources: 2Design & Make Publisher
	Data	Spreadsheets	• Understand what a spreadsheet is and what it can be used for. • Begin to use formulae within a spreadsheet to solve simple mathematical problems. • Start to use a spreadsheet to model a real-life problem. • Use formulae to calculate area and perimeter of shapes. • Start to create formulae that use text variables. • Use a spreadsheet to help plan a real-life situation, e.g. a school cake sale.	Potentially use Purple Mash Unit 5.3 Excel
		Handling Data	• Learn how to search for information in a database. • Work as a class or group to create a data collection sheet and use it to set up a straight forward database to answer questions. • Enter information and interrogate it (by searching, sorting, graphing, etc). • Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.	Potentially use Purple Mash Unit 5.4 Resources: 2Question 2Investigate
Digital Literacy	E-safety & Networks	Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• Abide by the school rules for e-safety. • Gain a greater understanding of the impact that sharing digital content can have. • Review sources of support when using technology and children's responsibility to one another in their online behaviour. • Know how to maintain secure passwords. • Understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. • Be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. • Learn about how to reference sources in their work. • Search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. • Ensure reliability through using different methods of communication.	Upper School AUP Purple Mash unit 5.2 Know it all Kidsmart Thinkyouknow Safer Internet Day resources Purple Mash Unit 6.2 for extra resources

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Year 6

		Topics	Key Skills and Knowledge	Resources
Computer Science	Programming	Coding	• Turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction). • Decompose algorithm in a logical way using knowledge of possible coding structures and applying skills from previous programs. • Test and debug program using logical methods. • Interpret a program in parts and make logical attempts to put separate parts of an algorithm together.	Purple Mash Unit 6.1 Further resources: Hour of Code Code for Life
		Kodu	• Design and build 3D worlds and models. • Test, evaluate and modify the system; ensuring that it is fit for purpose. • Design a game using 3D worlds and models› • Create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). • Solve open ended problems in a variety of programming languages.	Kodu Further resources: Hour of Code Code for Life
	Networks & the internet	Technology	• Learn about input and output devices. • Understand how a computer works and the component parts of a computer. • Learn to decode binary numbers. • Understand and can explain in some depth the difference between the internet and the World Wide Web. • Know what a WAN and LAN are and can describe how the internet is accessed the internet in school. • Show an understanding of how filtering and monitoring tools affect their use of the school network and Internet and compare this with their experience of access outside school.	Examples of computers Purple Mash Unit 6.8 for extra binary resources Purple Mash Unit 6.6 for extra resources on Networks
Information Technology	Multimedia	Text and multimedia To be taught as part of Learning Adventure	• Multimedia work show restrained use of effects that help to convey meaning rather than impress. • Use images that have been sourced/ captured/ manipulated as part of a bigger project (eg presentation or document) • Confident use of Word, Publisher and Powerpoint, as well as other software. • Children use full range of editing skills. • Readily apply filters when searching for digital content. • Compare a range of digital content and rate it in terms of quality and accuracy. • Explain in detail how credible a webpage is and the information it contains.	Book Creator Word, Publisher & Powerpoint Picollage 2Tpye Nessy fingers Search engines

Information Technology	Multimedia	Blogging	• Make clear connections to the audience when designing and creating digital content. • Design and create their own blogs. • Use criteria to evaluate the quality of digital solutions, identifying improvements, making some refinements. • Use collaborative tools, showing a sensitivity for this type of remote collaboration and communication.	Purple Mash Unit 6.4
	Data	Spreadsheets using Excel	• Develop spreadsheet skills using advanced formulae • Set up and use their own spreadsheet, which contains formulae to investigate mathematical models. Ask 'what if...' questions and change variable in their model. • Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results. • Relate their use of spreadsheets to model situations to the wider world. • Make sensible choices to present data and information, evaluating the quality of their work.	Excel Purple Mash Unit 6.3 for extra resources
Digital Literacy	E-safety & Networks	Online Safety To be covered at the start of the year and then reviewed at the beginning of each term or before an internet based lesson	• Children demonstrate the safe and respectful use of a range of different technologies and online services. • Recognise the value in preserving own privacy when online for own and other people's safety. • Abide by the school rules for e-safety. • Identify benefits and risks of mobile devices broadcasting the location of the user/device. • Identify the benefits and risks of giving personal information. • Review the meaning of a digital footprint and begin to understand how information online can persist. • Understand the importance of balancing game and screen time with other parts of their lives. • Identify the positive and negative influences of technology on health and the environment. • Have a clear idea of appropriate online behaviour and understand the importance of respecting others online. • Consider plausibility and appropriateness of online information. • Identify secure sites by looking for privacy seals of approval. • Use appropriate methods to validate information found from the internet and check for bias and accuracy.	Upper School AUP Purple Mash unit 6.2 Know it all Kidsmart Thinkyouknow Safer Internet Day resources Purple Mash Unit 6.2 for extra resources

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