COMPUTING

CURRICULUM: COMPUTING

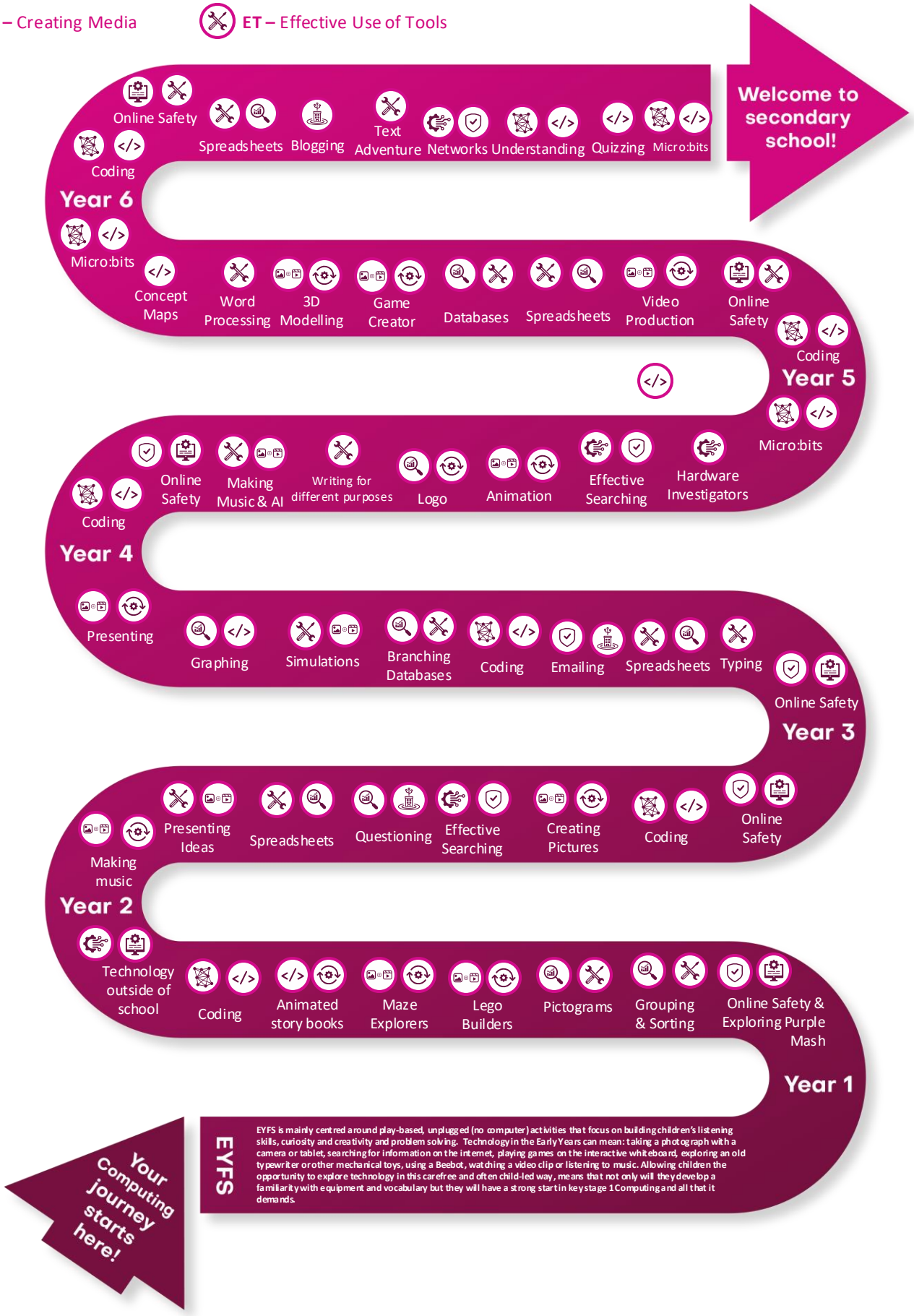
St Paul's
Catholic Primary School

Christ at the Centre, Children at the Heart

CURRICULUM NARRATIVE

KEY:

- **AL** – Algorithms
- **CS** – Computing Systems
- **CM** – Creating Media
- **DI** – Data & Information
- **DD** – Design & Development
- **ET** – Effective Use of Tools
- **IT** – Impact of Technology
- **NW** – Networks
- **PG** – Programming
- **SS** – Safety & Security



CURRICULUM NARRATIVE

Why do Computer Scientists read?

To find evidence and gather information.

To learn how to perform tasks on computer-based systems

To analyse instructions and make predictions

To evaluate and apply new technologies to existing technologies.

Write like a Computer Scientist

Instruction - Record how to perform a particular function.

Inform – Provide information to impart knowledge.

Critique – Review and analysis of systems and strategies to determine how it is fit for purpose.

Similarity and difference - Analysis of the extent and type of difference between systems and strategies.

Question – Question why and how it does or doesn't work and give possible explanations.

Key Strands

Algorithms – Being able to comprehend, design, create and critique algorithms

Computer networks — Understanding how networks can be used to retrieve and share information, and how they come with associated risks

Computer systems — Understanding what a computer is, and how its constituent parts function together as a whole

Creating media — Selecting and creating a range of media including text, images, sound and video.

Data and information — Understanding how data is stored, organised, and used to represent real-world artefacts and scenarios.

Design and development — Understanding the activities involved in planning, creating, and evaluating computing artefacts.

Effective use of tools — Using software tools to support computing work.

Impact of technology — Understanding how individuals, systems, and society as a whole interact with computer systems

Programming — Creating software to allow computers to solve problems

Safety and security — Understanding risks when using technology, and how to protect individuals and systems

The study of Computing allows pupils to be in control of a technology which is everywhere and will play a pivotal part in their lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skilful computer scientists.

The units for KS1 and KS2 are based on a spiral curriculum, which means topics are revisited regularly which consolidates and builds on prior learning within that strand.

CURRICULUM NARRATIVE

Progression Through the Key Strands

Within computing, there is a taxonomy of 10 key strands, which combined, ensure that our pupils can access a deep, interconnected understanding of the subject. Each strand has a combination of skills and concepts that feature throughout the national curriculum. Six of these strands describe broad areas of study within computing. The other four strands describe cross-cutting concepts and skills that are taught and revisited through the first six. Pupils make progress in computing by developing their specific, factual content for the topic (this knowledge is often described as 'substantive knowledge') and the skill development which allows them to gain and develop substantive knowledge (often described as 'disciplinary knowledge'). The threshold concepts relate to different aspects of disciplinary knowledge, and substantive knowledge is vital to all of them.

The Purple Mash scheme Scheme of Work provides coverage and is broad enough to meet the three required areas: Computer Science, Information Technology and Digital Literacy. The overview documents for each year group contain mapping information of these strands of the National Curriculum and match National Curriculum objectives to the Purple Mash units. Each strand has a combination of skills and concepts that feature throughout the National Curriculum.


Algorithms


Computing Systems


Creating Media


Data & Information


Design & Development


Effective Use of Tools


Impact of Technology


Networks


Programming


Safety & Security

Primary Themes	Computing Systems and Network	Algorithms and Programming	Data and Information	Creating Media
Taxonomy Strands	Computer systems Computer networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

CURRICULUM NARRATIVE

Progression Within a Unit – I can statements

'I can' statements are provided as part of each unit and demonstrate progression through concepts and skills. The Skills and Knowledge Check document shows the teachers Program Overview then the I Can statement for the child. All skills and concepts learned are included in this document. It gives pupils the mechanism to identify the progress they are making against skills and knowledge. It also maps the skills and knowledge against the National Curriculum for Computing and maps Purple Mash Scheme of Work against the National Curriculum for Computing.

At all times children will be learning about using technology safely and respectfully, developing their general information technology skills and this overlap, repetition and reinforcement helps to give children a deeper understanding of the knowledge and skills across all strands and of their integrated nature in the real-world.

KS1 Example of I Can Statements: Year 1

Computing Scheme of Work
Skills and Knowledge Check

Y1 Progression Overview (Teacher)

	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, keep personal information private; identify where to go for help\ support with 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 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 can 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.

Name _____ Class _____

Y1 'I Can' Statements

= sometimes = mostly -= always

	Unit Theme	'I can'	Aut	Spr	Sum	Teacher Comments
Computer Science	1.2- Grouping & Sorting 	I can apply a logical process when sorting and grouping a range of objects (1.2)				
		I can explain that an algorithm is a set of instructions. (1.4, 1.5)				
	1.4-Lego Builders 	I know that a computer program turns an algorithm into code that the computer can understand. (1.4, 1.7)				
	1.5-Maze Explorers 	I can work out what is wrong when the steps are out of order in instructions. (1.4, 1.5)				
		I can say that if something does not work how it should it is because my code is incorrect. (1.7)				
	1.7-Coding 	I can try and fix my code if it isn't working properly. (1.7)				
		I can make good guesses of what is going to happen in a program. For example, where the turtle might go. (1.5, 1.7)				

CURRICULUM SUMMARY – KS1 / KS2

Predominant Area of Computing*
Computer Science | Information Technology | Digital Literacy
*Most units will include aspects of all strands.

EYFS

To be taught throughout the year		
Mouse and Trackpad Skills Keyboard Skills Drawing Skills	Robots Sounds Hardware Quizzes	Photography Technology around us Safety and Privacy Logging into Purple Mash

Year 1

	Unit 1.1	Unit 1.2	Unit 1.3	Unit 1.4	Unit 1.5	Unit 1.6	Unit 1.7	Unit 1.8	Unit 1.9
	Online Safety & Exploring Purple Mash	Grouping & Sorting	Pictograms	Lego Builders	Maze Explorers	Animated Story Books	Coding	Spreadsheets	Technology outside school
Number of lessons	4	2	3	3	3	5	6	3	2
Main tool			2Count		2Go	2Create A Story	2Code	2Calculate	

Year 2

	Unit 2.1	Unit 2.2	Unit 2.3	Unit 2.4	Unit 2.5	Unit 2.6	Unit 2.7	Unit 2.8
	Coding	Online Safety	Spreadsheets	Questioning	Effective Searching	Creating Pictures	Making Music	Presenting Ideas
Number of lessons	6	3	4	5	3	5	3	4
Main tool	2Code		2Calculate	2Question 2Investigate		2Paint A Picture	2Sequence	

Year 3

	Unit 3.1	Unit 3.2	Unit 3.3	Unit 3.4	Unit 3.5	Unit 3.6	Unit 3.7	Unit 3.8	Unit 3.9
	Coding	Online safety	Spreadsheets	Touch Typing	Email (inc. email safety)	Branching Databases	Simulations	Graphing	Presenting
Number of lessons	6	3	3 4 lessons for Crash Course	4	6	4	3	3	5\6*
Main tool	2Code		2Calculate	2Type	2Email	2Question	2Simulate	2Graph	PowerPoint or Google Slides

*Platform dependent

CURRICULUM SUMMARY – KS1 / KS2

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Year 4

	Unit 4.1	Unit 4.2	Unit 4.3	Unit 4.4	Unit 4.5	Unit 4.6	Unit 4.7	Unit 4.8	Unit 4.9
	Coding	Online Safety	Spreadsheets	Writing for Different Audiences	Logo	Animation	Effective Searching	Hardware Investigators	Making Music
Number of lessons	6	4	6	5	4	3	3	2	4
Main tool	2Code		2Calculate		2Logo	2Animate			Busy Beats

Year 5

	Unit 5.1	Unit 5.2	Unit 5.3	Unit 5.4	Unit 5.5	Unit 5.6	Unit 5.7	Unit 5.8
	Coding	Online Safety	Spreadsheets	Databases	Game Creator	3D Modelling	Concept Maps	Word Processing
Number of lessons	6	3	6	4	5	4	4	8
Main tool	2Code		2Calculate	2Investigate	2DIY 3D	2Design & Make	2Connect	MS Word or Google Docs

Year 6

	Unit 6.1	Unit 6.2	Unit 6.3	Unit 6.4	Unit 6.5	Unit 6.6	Unit 6.7	Unit 6.8	6.9
	Coding	Online Safety	Spreadsheets	Blogging	Text Adventures	Networks	Quizzing	Understanding Binary	Spreadsheets
Number of lessons	6	2	5	4	5	3	6	4	8
Main tool	2Code		2Calculate	2Blog			2Quiz		Excel or Google Sheets

CURRICULUM NARRATIVE

Intent

In Computing we intend to teach the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. We will build on this knowledge and understanding so that pupils use information technology to create programs, systems and a range of content. We will focus on being safe whilst working in a digital environment and understand the digital footprint we leave. The curriculum will develop pupil's digital literacy so that they are able to use and express themselves at a level suitable for the future workplace and as active participants in a digital world.

Implementation

Our curriculum is based on the National Centre for Computing Education (NCCE) using the Purple Mash scheme of work throughout the ages. We implement a curriculum that is progressive throughout the whole school and that help children gain the skills required at the appropriate age. At St Paul's we use the Purple Mash scheme of work which enables clear coverage of the computing curriculum whilst also providing support and CPD for less confident teachers to deliver lessons. All teachers at St Paul's are Purple Mash trained. The units are practical and engaging and allow computing lessons to be hands on. We provide a variety of opportunities for computing learning. Computing and safeguarding go hand in hand and we provide a huge focus on internet safety inside and outside of the classroom.

Special Educational Needs Disability (SEND) / Pupil Premium / Higher Attainers
All children will have Quality First Teaching. Any children with identified SEND or in receipt of pupil premium funding may have work additional to and different from their peers in order to access the curriculum dependent upon their needs. As well as this, our school offers a varied curriculum, providing children with a range of opportunities in order for them to reach their full potential and consistently achieve highly from their starting points.

Impact

We encourage our children to enjoy and value the curriculum we deliver. We will constantly ask the WHY behind their learning and not just the HOW. We want learners to discuss, reflect and appreciate the impact computing has on their learning, development and well being. Finding the right balance with technology is key to an effective education and a healthy life-style. We feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond. We encourage regular discussions between staff and pupils to best embed and understand this. The way pupils showcase, share, celebrate, and publish their work will best show the impact of our curriculum. We also look for evidence through reviewing pupil's knowledge and skills digitally through online tools and observing learning regularly. Progress of our computing curriculum is demonstrated through outcomes and the record of coverage in the process of achieving these outcomes.

Mixed Age Classes

For mixed age classes, there is an overview of learning available to ensure that pupils meet key concepts for their year group without repeating the same theme of learning.

CURRICULUM SUMMARY - EYFS

'Digital technology is driving extraordinary global changes, so it's crucial that children and young people are educated to make use of their opportunities.'
- Amanda Spielman

EYFS COVERAGE PURPLE MASH

Technology around us
- I can tell you about technology used at home and school.
- I can operate simple equipment.
- I can use a safe part of the Internet to play and learn.

Using Purple Mash with an Individual Login
• These ideas can be used if you wish children to access Purple Mash using individual accounts e.g. for home learning or as part of their progression in school.

Safety and Privacy
• Cross-over with PSHE curriculum: many of these aspects will be covered in PSHE sessions and can be extended to lay the foundations for online safety awareness.
• Introduces the idea of ownership and privacy.
• How to recognise when you are not comfortable with something.
• The concept of knowing who to get support from.
• The idea of how to say no to something
• Keeping healthy; link to screentime
• Being kind

Keyboard Skills
• This includes simple typing, capital letters and function keys such as 'enter'.
• Activities are included that match lower-case and capital letters as most keyboards that children encounter will contain capital letters.
• It also includes recognising different fonts for example, an 'a' written a or a.
• Children can also combine mouse skills and typing skills using the mouse or arrow keys to control the cursor when writing.

Drawing skills
• This includes choosing pens and style and composing drawn images on screen.
• It also includes the undo function.
• The use of a tablet is suggested as well as a mouse to enable children to mark make using touch.

Robots
• Most early years classroom have access to floor robots; ideas are included for structured play with robots, starting with toy vehicles initially.
• There are also ideas that start to develop children's logical processing skills in terms of following and creating instructions and making predictions.

Sounds
• These ideas make use of recording tools within Purple Mash
• Children will also create music using the tools. Photography
• Ideas for using photos in the classroom.
• How to upload images; a variety of devices and connections are suggested but will need to be adapted to the resources available in the school.

Hardware
• Introduces knowledge about the parts of a computer and how to look after equipment.
• Basic computer hygiene, including handwashing, being gentle and keeping food and drinks away from devices.

Quizzes
• Children will encounter quizzes throughout Purple Mash, these ideas use simple quizzes to familiarise children with quizzing as a learning aid
• Children will use a variety of question types.
• Children will see how to find the correct answers.

Mouse and Trackpad Skills
• This includes clicking, navigating using the movement of the mouse and dragging and dropping.
• The activities aim to support children in developing the hand-eye coordination skills and fine-motor required to operate a mouse effectively.
• A typical laptop trackpad is also introduced.

ONLINE SAFETY / SAFE USE OF TECHNOLOGY

- I use rules given to me by a trusted adult when I use technology.
- I am kind to my friends
- I use a safe part of the Internet to play and learn.
- I make sure a trusted adult is with me.
- I use a log in to access devices.
- I see information that is put online about me.
- I use devices with other people, talking about what we do I am careful with technology devices.
- I tell you the things that are the same about my friend and me.
- I use apps, games and websites that trusted adults show me.
- I use a device for a limited time.

CURRICULUM COVERAGE

Computing Progression
N.C. Statements KS1 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 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.*

Computing Progression
N.C. Statements KS1 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, 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 photos, text and sound.*	*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.*

CURRICULUM COVERAGE

Computing Progression
N.C. Statements KS2 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 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 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.*	*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.*

Computing Progression
N.C. Statements KS2 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 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 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.*	*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.*

CURRICULUM COVERAGE

Computing Progression
N.C. Statements KS2 Year 5

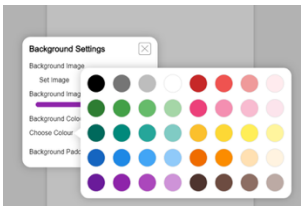
	Computer Science				Information Technology		Digital Literacy
Statement	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Use sequence, selection and repetition in programs; work 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 real-life 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 appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.*	*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.*

Computing Progression
N.C. Statements KS2 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 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 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**.*	*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's safety.*

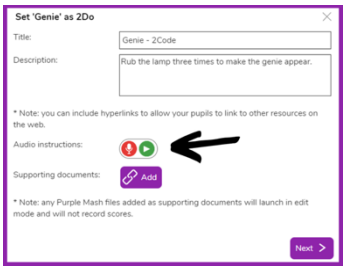
SEND

Accessibility and Customisation



One of the strengths of Purple Mash is its accessibility. The platform offers a range of tools and features that can be tailored to meet the unique needs of each student. With adjustable font sizes and customisable backgrounds, pupils with visual impairments or reading difficulties can access and engage with content more effectively.

Visual Adaptations



Visual design – The whole of the Purple Mash site is visual, with large icons used for each app, which children can easily identify and recognise each time they use it. Icons within toolbars are consistent across our apps.
Backgrounds – In some apps you can change the background colour in order to lower the contrast between the background and the text. This can be especially useful for children with Dyslexia.
Zoom functionality - Certain apps on Purple Mash also have a zoom functionality, making it much easier for children to zoom in to read a particular section of text, or pictures.
Alternative fonts – There are several different fonts that can be used within our writing tools, including the Dyslexia-friendly Aravis font.

Audio Adaptations

Voice notes – teachers are able to easily add extra information, feedback or support in the form of voice notes on 2Dos and when marking work, as well as to quizzes and some tools for extra instructions and word banks.
Child-added audio – In some apps, such as 2Publish and MashCams, children can add their own audio to their work, negating the need for typing when this is difficult for them.

Multi-Sensory Learning

Students often require multi-sensory approaches to facilitate their learning. Purple Mash integrates multimedia elements such as images, videos, and audio clips, enabling students to access information in different ways. This multi-sensory approach enhances engagement and comprehension, particularly for students with SEN. Teachers can also easily create interactive lessons and activities using Purple Mash's tools, providing an immersive learning experience for students with SEN.

Differentiated and Progressive Learning

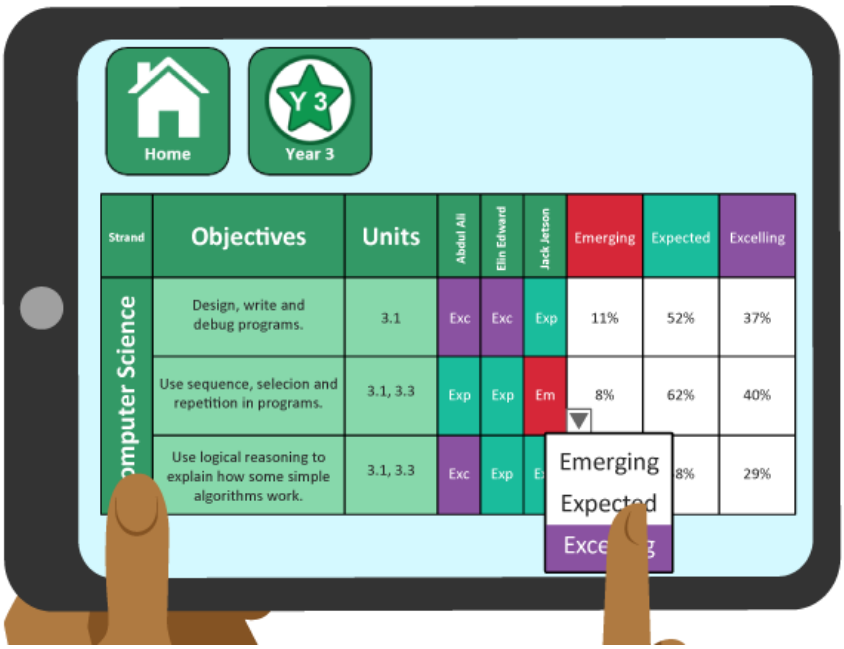
Purple Mash offers a wealth of resources and activities that can be tailored to suit individual needs. Teachers can assign specific tasks, projects, or assessments based on each student's abilities and areas of improvement. This personalized approach helps SEN students to progress at their own pace, building confidence and competence in their academic journey.

- **Set progressive challenges** – When setting activities to complete in lessons, teachers are able to set different levels of the same task, ensuring that children working at all levels are challenged but able to access the learning and be successful in their lesson. For example, writing frames can be easily adjusted to meet the needs of particular learners.
- **Teacher-created resources** – In addition to the tools and resources on site, teachers are able to create their own resources and upload these as 2Dos. There's also a whole bank of resources ready-made by other teachers which are able to be searched through, saved and set as 2Dos for your own class.
- **Templates to scaffold** – There is a plethora of templates and examples to scaffold children's learning, whether it be a computing lesson, science investigation, geography project or writing task.
- **Step-by-step instructions** – Computing tasks on Purple Mash include step-by-step instructions which children can work through independently.
- **In-built extension tasks** – Lesson plans included in the Purple Mash Computing Scheme of Work all include extension tasks for children working above ARE. In coding, there are three different levels of software that can be used, as well as free code activities and debug challenges for further extension. If children want to be challenged further, they could become digital leaders and lead termly computing tasks across the school.

ASSESSMENT

Purple Mash provides a number of different resources to support teachers in making assessments that fit in with their whole s chool model:

- Each unit has sample emerging, expected and exceeding statements that describe what a child's work would demonstrate to be at one of these stages in their learning for that unit. These include specific lesson outcomes and evidencing examples.
- Assessment is integrated into the Purple Mash system via setting 2Dos with curriculum area tags, teachers can then mark the work and assess each piece, which over time builds a picture of pupils' outcomes and progress.
- We provide such details in a variety of formats to suit schools; use of Purple Mash Data tab, Excel assessment format, paper-based methods, 'I can' statements for children and knowledge organisers.
- In addition, each unit has a concept map and quiz, these can be used for formative and summative assessment to give a picture of what children have understood.
- Formative assessment forms part of the lessons themselves to help children and teachers check children's prior knowledge and understanding.



The focus for assessment is on deeper knowledge and not simply being able to use a tool: a variety of approaches will help te achers to build up this picture of their children.

Assessment is a continuous process which is integral to teaching and learning and:

•Enables an informed judgement to be made about a pupil's understanding, skills, attitude to learning and successful acquisition of knowledge as they move through the curriculum.

•Incorporates a wide range of assessment techniques to be used in different contexts/purposes.

•Is accompanied by **clear assessment criteria** that enables effective marking and feedback, a reliable progress evaluation to be given and demonstrates clearly what a pupil must do to improve.

•Provides feedback recognising achievement, increasing pupil confidence/motivation.

•Supports learning by making clear to pupils: what they are trying to achieve; what they have achieved; what the learning gaps and misconceptions are and what the next steps in learning are.

•Allows regular subject specific extended writing and access to high quality text/ reading.

•Should be moderated and standardised to ensure **purposeful, meaningful, and timely feedback.**

•Includes feedback to pupils to help them understand what they need to improve, challenging them to achieve their target rather than a grade.

•Allows leaders and staff to make timely adaptations to the curriculum.