Year 1 - Computing

	Computer Science			Information Technology	Digital Literacy	
National Curriculum 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 ordered instructions that is used to solve a problem or achieve an objective. When they code, they understand that they are using an algorithm and turning it into something that the computer can interpret. **Unit Coverage** ● Creating & Following Instructions ● Coding	Children can create simple instructions for someone to follow, building up to creating a simple program that a computer can follow by arranging code blocks. They will recognise simple errors in a program such as the way an object is moving and attempt to debug in a purposeful way. **Unit Coverage** ● Creating & Following Instructions ● Coding	When looking at simple programs, children use logical reasoning based upon their understanding of the desired algorithm and their knowledge of code blocks to predict outcomes. They focus on objects and their actions and the events that initiate these actions. **Unit Coverage** ● Coding	Children can name, save and retrieve their work and follow simple instructions to access online resources. They create and combine digital content such as images, sound and text with a purpose. **Unit Coverage** ● Introduction to PM ● Creative Computing ● Data Explorers ● Animated Stories ● Making Beats	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can comment on the specific purpose of technology examples they encounter. **Unit Coverage** ● Technology Around Us	**See 2BeSafe for breakdown** **Unit Coverage** ● Technology Around Us

Year 2 - Computing

	Computer Science			Information Technology	Digital Literacy	
National Curriculum 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 create a computer program from an algorithm they have made, turning each step into code. They recognise that outputs from an on-screen program or physical device are directly attributed to the instructions they have coded. **Unit Coverage** • Route Explorers • Coding	Children can create programs that include more than one object type. They can alter attributes of objects purposefully and predict and observe the effect. They vary the flow of sequences through the use of timer commands. They can program buttons to initiate events in programs. They know that unexpected errors in their programs are due to the code they have created. They attempt to debug using logical reasoning, interpreting each line of code in sequence. **Unit Coverage** • Route Explorers • Coding	Children can identify the parts of a program that respond to specific events and initiate specific actions. Using a design plan or simple written algorithm, they can compare this against how a program is executing when in play mode. **Unit Coverage** • Route Explorers • Coding	Children know how to access digital content they have created or have been assigned . They use a range of software to create digital content and manipulate it with purpose. For example, creating spreadsheets to organise data, merging digital artifacts from different sources into a file. They know how to save and edit work. **Unit Coverage** • Creating Pictures • Spreadsheets • Questioning • Presenting Ideas • Making Music	Children identify a range of devices that connect to the internet and explain that the internet is used to access websites and find information. They can carry out simple keyword searches to find specific information. **Unit Coverage** • The Internet	**See 2BeSafe for breakdown** **Unit Coverage** • The Internet • 2Be Safe

Year 3 - Computing

	Computer Science				Information Technology		Digital Literacy
National Curriculum 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's ability to plan algorithms is increasingly detailed including identifying the logical steps towards a solution with stages of decomposition of the overall task. e.g. planning the route of turtle. Their familiarity with coding structures such as sequences and timers allows them to 'read' a program. **Unit Coverage** • Route Planners • Coding • micro:bits	Children can design and code simple sequential programs, using timers to create delay effects. They can use a repeating program structure as an efficient alternative to a sequence e.g. when drawing simple shapes with a turtle object. **Unit Coverage** • Route Planners • Coding • micro:bits	Children use logical reasoning and their understanding of algorithms to read and create simple flowcharts for planned or existing programs. They use these to support their efforts at debugging logically They are beginning to consider how the nesting of code affects the program flow. **Unit Coverage** • Route Planners • Coding • micro:bits	Children know the ways people can communicate with each other (digital and non-digital). They explore the use of emails and know how they can be exchanged They are able to read, compose and send their own emails. **Unit Coverage** • Email	**See 2BeSafe Breakdown**	Children can identify suitable software for a given task from the suite of Purple Mash Tools. For example, choosing 2Calculate to make a spreadsheet, 2Email to send messages online or 2Question for branching databases. They can create simple databases, spreadsheets to perform calculations and present information. **Unit Coverage** • Email • Branching Databases • Spreadsheets • Presentations • Touch Typing	**See 2BeSafe Breakdown** **Unit Coverage** • Email

Year 4 - Computing

	Computer Science				Information Technology		Digital Literacy
National Curriculum 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 independently design, code, test, and debug a simple program. Their ability to decompose a task into smaller parts in order to code or interpret programs allows them greater understanding of how to achieve desired effects with code. They begin to consider efficiency when structuring code. **Unit Coverage** • Logo • Coding • micro:bits	Children understand how to structure a program to use selection through the use of if and if/else statements. Their understanding of program structures enables them to code more complex algorithms that use sequencing, selection and repeat. They can explain the function of a variable and create number variables to keep track of things in a program such as scoring. **Unit Coverage** • Logo • Coding • micro:bits	Children can read multi-step programs and accurately predict outcomes. They show more logical approaches to debugging, recognising how different parts of the code interact. **Unit Coverage** • Logo • Coding • micro:bits	Children develop their understanding of search engines and how they are used to find relevant information. They obtain focused results from a search query using clear keywords and refined searching techniques such as quotation marks. **Unit Coverage** • Effective Searching • Unpacking Hardware	**See 2BeSafe Breakdown** **Unit Coverage** • Effective Searching • AI	Children can effectively use a greater range of software tools and select tools for a purpose. For example, audio books using 2Cast, digital animations using 2Animate or Musical compositions using a range of music tools. They can combine digital products such as inserting music they have composed into an animation they create. **Unit Coverage** • Animation • Sound Stories • Composing Beats • Unpacking Hardware • AI	**See 2BeSafe Breakdown** **Unit Coverage** • Effective Searching

Year 5 - Computing

	Computer Science				Information Technology		Digital Literacy
National Curriculum 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 consider a range of program structures when turning tasks into algorithms. They understand what simulating a physical system means and write programs that decompose these systems and model parts through code. They understand how they are using levels of abstraction and decomposition. **Unit Coverage** ● Coding ● micro:bits ● External Devices	Children include sequence, selection and repetition in programs. They recognise when the use of a function will improve the efficiency and readability of their code and can create and use functions in coding. They understand how both string and number variables can utilise the system memory to hold information used by the program. **Unit Coverage** ● Coding ● External Devices	Children have increased understanding and familiarity with a variety of coding structures allows them to 'read' code at a high level and focus logically on the parts they need to debug when something doesn't execute as designed. They use a mixture of logical reasoning and trial and testing to identify and fix bugs. **Unit Coverage** ● Coding ● micro:bits ● External Devices	**See Year 4 for previous outcome and Year 6 for progressive outcome.**	**See 2BeSafe Breakdown**	Children refine their ability to select and use a growing range of software for a purpose. They create and use a range of digital products including databases, spreadsheets and word processing software. They use software to collect data, manipulate, interrogate and produce information based on a specification (query). **Unit Coverage** ● Quizzing ● Databases/Spreadsheets ● Word Processing ● Concept Maps ● Game Creator	**See 2BeSafe Breakdown**

Year 6 - Computing

	Computer Science				Information Technology		Digital Literacy
National Curriculum 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 understand the advantage of coding from program design documentation and do this at a deeper level of abstraction enabling them to produce accurate algorithms to code. They follow flowcharts to design and debug programs. Children use decomposition & abstraction more confidently to simplify and break down tasks. **Unit Coverage** • Coding • Python	Children have both coding structure understanding and knowledge of a greater range of coding components that enable them to make use of variables, user inputs, cloning and hotspots to add complexity and user interactivity to their programs. They are able to translate skills and understanding gained through the use of block coding programs to text-based coding in Python. **Unit Coverage** • Coding • Python	Children default to a logical approach when debugging. They begin debugging at the program design and algorithm stage of tasks so their coding becomes more effective with less reliance on a try and test approach at the early stages of coding a program. They can then use a step-by-step approach to step through parts of code. **Unit Coverage** • Coding • Python	Children can explain the function of networks and the difference between a LAN and a WAN with relevant examples. They understand the difference between the internet and the World Wide Web and can name some services as examples of each. **Unit Coverage** • Networks	**See 2BeSafe Breakdown**	Children's use of a range of digital tools demonstrates their transferrable skills between tools both within Purple Mash and to industry standard software. They use tools with a greater level of sophistication. For example, including their own digital artefacts within their blogs, graphs within written pieces and application of data analysis. **Unit Coverage** • Graphing • Blogging • Data Detectives • Spreadsheets • 3D Modelling	**See 2BeSafe Breakdown**