

Hayes - Curriculum Progression Map

Hayes Curriculum Vision:

At Hayes, we strive for our children to push beyond any perceived idea of potential, to be all they can be, regardless of background in order that they leave us as good human beings - happy, kind and responsible. Our curriculum is integral in shaping the children to become independent and life-long learners. At Hayes, we also aim to equip our children with the ability to 'think' in order to make sense of an ever-changing world. Our curriculum has been designed, with thinking at its heart, to achieve our ultimate vision: all children will live fulfilling and happy lives, being all they can be.

Curriculum Design for Computing

Computing Intent:

Our intention at Hayes is to ensure that every child is able to access a computing curriculum that both challenges and supports them in achieving their very best, especially as computing is part of their everyday life. There is an immense value to technology and we want our children to see its value, as well as be safe users in the process. They will become responsible, competent, confident and creative users of information and communication technology.

Computing Implementation:

Our computing curriculum is based upon the scheme of learning designed by Purple Mash and supplemented with online safety resources from Childnet and the UK Safer Internet Centre. It comprises the three aspects below.

Computer Science: The children at Hayes learn to create algorithms and computing vocabulary, including programming, algorithm, debug, repetition and coding. In each year group, they practically explore writing code and creating programs, as well as using logical reasoning to explain how algorithms work.

Information Technology: This strand focuses on understanding the internet, using search technologies efficiently to collect, evaluate and present data and information. The children will apply their knowledge and skills with information technology to support and enhance their learning across the wider curriculum.

Digital Literacy: We aim to provide children with the tools to stay safe online. In a world where any information is accessible at all times, and any information can be posted and shared by anybody, we strongly value the importance of equipping children at Hayes with the knowledge and tools to think critically about the validity of reliable facts from ones that are not. We believe it is crucial that children understand the importance of not sharing personal information online and are able to consistently make safe choices. We aim for them to understand themselves as individuals within their community but also members of a wider global community as a responsible digital citizen.

Computing Impact

What you would see in a Hayes computing lesson

- Proficient users of technology, who are able to work both independently and collaboratively, who are not afraid to use resources, instructions and peers to help them.
- Pupil voice will indicate children's knowledge, understanding and enthusiasm.
- Computing hardware and software being utilised to enhance the learning outcomes of our children, across the curriculum.
- Purple Mash folders will encapsulate children's experiences, knowledge, understanding and responses.
- Pupil voice will show clear progression in technical skills where children can explain the skill they are working on.
- Children confidently knowing how to operate the device and how to switch it on and using them as a tool for learning.
- Motivated and engaged children participating in well-planned, adapted, high quality and inspiring lessons that have a foundational setting structured by Purple Mash.
- All children, including children with SEND are given the appropriate level of challenge/scaffold to enable them to aspire and succeed.
- Curious learners, who grasp opportunities to continue to explore and make discoveries and implement computing skills they have learned in other lessons across the curriculum and at home.
- Children using ELF to ELF (Empowering Learning through Feedback) to support each other to complete challenges, as well as to share their knowledge and expertise to others.
- Children showing resilience and reflecting on errors, embracing them as learning opportunity to develop.

Our destination as computer scientists at Hayes will be:

- Equipped with the knowledge and skills to access the next stage of their learning, with a clear understanding of how quickly this knowledge will evolve.
- Able to apply their knowledge and skills in utilising information technologies to communicate their ideas to a range of audiences.

- Responsible digital users, able to explain how our SMART rules enable them to stay safe online. This is evidenced through our monitoring of the online spaces and platforms provided by the school e.g. *Purple Mash, Class Dojo Portfolio*.
- Fully aware of the risks of using digital technologies and measures they can take to mitigate against these risks.
- Competent, curious, reflective, critical and safe online users, who respect and utilise technology appropriately and proactively.

Progression of Knowledge:

Our Computing curriculum for EYFS - KS2 follows three strands - Computer Science, Information Technology and Digital Literacy. There is an expectation that children will use their prior learning (colour codes for ease) and build upon this as they journey through Hayes. Children will reach an **end point** where their understanding of the World has been strengthened and deepened through this purposefully mapped out curriculum.

In **Early Years**, children will encounter Computing through **Understanding of the World**. Here children will look at technology used in different places and how to use technology for different uses. Although the technology strand has been removed from the Understanding the World area of learning in EYFS, computing and technology are still vitally important in EYFS. It ensures that pupils enter Year 1 with a strong foundation, builds problem-solving abilities, encourages resilience and supports other areas of learning. By integrating computing into EYFS, pupils also begin to build their digital literacy and their understanding of e-safety. The EYFS curriculum is mindful of how their curriculum can be used to create the foundations of prior knowledge which we build upon as children journey through Year 1 and KS1.

Computer Science		Information Technology		Digital Literacy		
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Unit 1.1 - Online Safety Unit 1.9 Technology outside school	Unit 2.2 - Online safety Unit 2.5 - Effective Searching	Unit 3.2 - Online safety Unit 3. 5 - Email (also computer science)	Unit 4.2 - Online safety Unit 4.7 - Effective searching	Unit 5.2 - Online Safety Unit 5.5 - Game Creator	Unit 6.2 - Online Safety Unit 6.4 - Blogging
To take a photograph and use it within their pictures. To use paint to create pictures. Create a simple animation. Record their voice over a picture. Dictate sentences into a device. Recording sounds and matching to pictures. Identify a chart Present data on a digital device To create a digital collage.	Unit 1.3 - Pictograms Unit 1.6 Animated Stories	Unit 2.4 - Questioning (Just lesson 1) Combine with Unit 3. 8 - Graphing Unit 2.6 - Creating pictures Unit 2.7 - Making Music Unit 2.8 - Presenting	Unit 3.6 - Branching Databases Unit 3.4 Touch Typing Unit 3.3 - Spreadsheet (use the crash course unit, which fills in gaps from KS1) Unit 3.9 - Presenting	Unit 4.6 - Animation Unit 4.10 - AI Unit4.3 - Spreadsheets	Unit 5.8 - Word Processor Unit 5.6 - 3D Modelling Unit 5.4 -Databases	Unit 6.9 -Spreadsheets
To use a computer mouse and touch screen with confidence. To know how to close down apps and websites appropriately, as well as turn off computers and iPads correctly. Use a selection of QR codes to access websites and games. To be able to explore a 360 image and to use AR objects. Sort objects into groups and take photos of this. Programme beebots. Use the beebot app to give commands and instructions To use their fingers or a mouse to move and resize images	Unit 1.2 - Grouping and Sorting Unit 1.4 - Lego Builders Unit 1.5 - Maze explorers Unit 1.7 - Coding	Unit 2.1 - Coding	Unit 3.1 - Coding	Unit 4.1 Coding Unit 4.8 - Hardware Investigators Unit 4.5 - Logo	Unit 5.1 - Coding Unit 5.9 - Using External Devices	Unit 6.6 - Networks Unit 6.5 -Text Adventures 6.1 - Coding
End Points: EYFS ELG · Children recognise that a range of technology is used in places such as homes and schools. - They select and use technology for particular purposes.	By the end of Key Stage 1, children will: ✓ 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.			By the end of Key Stage 2, children will: ✓ 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		

		<ul style="list-style-type: none"> ✓ 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.
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Disciplinary Knowledge:

Digital Literacy Knowledge:			
Year group	Key skills and progression	Year group	Key skills and progression
Nursery		Reception	
Year 1	<ul style="list-style-type: none"> 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. Understand the importance of keeping information, such as their 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. 	Year 2	<ul style="list-style-type: none"> Able to 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. 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.
Year 3	<ul style="list-style-type: none"> 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. 	Year 4	<ul style="list-style-type: none"> 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.
Year 5	<ul style="list-style-type: none"> 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. 	Year 6	<ul style="list-style-type: none"> 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.

Information Technology Knowledge:			
Year group	Key skills and progression	Year group	Key skills and progression
Nursery		Reception	
Year 1	<ul style="list-style-type: none"> 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 resource use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count. 	Year 2	<ul style="list-style-type: none"> Demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. Are able to edit more complex digital data such as music compositions within 2Sequence. Are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.
Year 3	<ul style="list-style-type: none"> 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. 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. 	Year 4	<ul style="list-style-type: none"> Understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. 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

	<ul style="list-style-type: none"> Can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond. 		of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.
Year 5	<ul style="list-style-type: none"> 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 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. 	Year 6	<ul style="list-style-type: none"> 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. 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.

Computer Science Knowledge:			
Year group	Key skills and progression	Year group	Key skills and progression
Nursery		Reception	
Year 1	<ul style="list-style-type: none"> Know that an algorithm is a set of instructions used to solve a problem or achieve an objective. Know a computer program turns an algorithm into code that the computer can understand Work out what is wrong with a simple algorithm when the steps are out of order. Write their own simple algorithm. Know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code. Can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. 	Year 2	<ul style="list-style-type: none"> Can explain that an algorithm is a set of instructions to complete a task. Know the need to be precise with their algorithms so that they can successfully converted into code, when designing simple programs. Can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Their program designs display a growing awareness of the need for logical, programmable steps. 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.
Year 3	<ul style="list-style-type: none"> 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. Can identify an error within their program that prevents it following the desired algorithm and then fix it. Demonstrate the ability to design and code a program that follows a simple sequence. Can experiment with timers to achieve repetition effects in their programs. Beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. 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. 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. 	Year 4	<ul style="list-style-type: none"> 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. Make more intuitive attempts to debug their own programs. Use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. Understanding '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. Can make use of user inputs and outputs such as 'print to screen'. 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.
Year 5	<ul style="list-style-type: none"> May attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. 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. 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. In coding, 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 	Year 6	<ul style="list-style-type: none"> 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. 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. 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.

	select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards.		<ul style="list-style-type: none"> 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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Vertically Integrated Curriculum:

Year 1								
Unit	1.1 Online Safety	Unit 1.9 Technology outside school	Unit 1.2 - Grouping and Sorting	Unit 1.3 - Pictograms	Unit 1.4 - Lego Builders	Unit 1.5 - Maze explorers	Unit 1.7 - Coding	Unit 1.6 Animated Stories
Term:	Autumn 1	Autumn 1	Autumn 2	Autumn 2	Spring 1	Spring 1	Summer 1	Summer 2
National Curriculum:	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.	Recognise common uses of information technology beyond school.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	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.	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.
Specific content Substantive Knowledge	<p>It is important to log in to a site safely and the importance of keeping passwords safe.</p> <p>Many online sites, including Purple Mash, have an area for their work that is accessible only to the user.</p> <p>An avatar is a virtual representation of them suitable for use online.</p> <p>Work can be loaded and saved in an online area in platforms children have access to, including Purple Mash, can be accessed by teachers.</p> <p>It is important to log out when they have finished working as a way of securing personal accounts.</p>	<p>Technology is science and engineering knowledge put into practical use to solve problems or invent useful tools.</p> <p>Technology is used within school.</p> <p>Technology is used outside of school.</p>	<p>Items can be sorted using a range of criteria. When sorting items, a logical process should be used.</p> <p>An algorithm is a precise, step-by-step set of instructions used to solve a problem or achieve an objective.</p> <p>Computers can be used as a way of sorting on screen objects.</p>	<p>Data is a collection of information, used to help answer questions.</p> <p>A pictogram is a visual way of representing data.</p> <p>We can look at data represented in pictograms and ask questions as a way of interrogating data.</p> <p>Programs such as 2Count enable people to create pictograms on a computer. This has the advantage of being able to easily modify data and share it with lots of people.</p>	<p>To achieve a specific effect when building something, accurate instructions must be followed.</p> <p>Computer programs need precise instructions to follow and these are called algorithms. If instructions are vague, outcomes will vary for any given task.</p> <p>The order of instructions for a task affects the results.</p> <p>Correcting errors in an algorithm or program is called debugging.</p>	<p>You can move a character (turtle) within specific computer programs around a computer screen such as 2Go by using direction keys. When a direction key is used it is known as a command.</p> <p>On screen direction keys can have eight possible directions which includes diagonal movements.</p> <p>Number keys can be combined with direction keys to give a program more accurate instructions and avoid less command clicks. Each square on a grid relates to 1 unit and that when using number keys this should be referenced.</p> <p>Lists can be made with directional instructions within 2Go and these are known as algorithms. These lists can be changed to improve the</p>	<p>Tasks can be given to people and computers by using instructions. Computer programs work by following instructions called code known as algorithms. In both cases, these need to be clear and concise.</p> <p>There are objects and action code block in the 2Code environment and that you can make a simple program using these. Each single instruction such as 'Object Right' is called a command.</p> <p>An event is something that makes a block of code run such as a user pressing a key or clicking a screen. Event, object and action code blocks can be used together.</p>	<p>There are differences between traditional books and ebooks.</p> <p>Images can be created within e-book software.</p> <p>Animations can be included in e-books.</p> <p>E-book software allows pages to be added and overwriting of work.</p> <p>Audio such as sound effects, voice recordings and music can be included within e-books.</p> <p>Backgrounds can be included in e-books to help engage an audience.</p> <p>Text fonts and sizes can be changed in e-books to suit an intended audience.</p>

						instructions which is known as debugging.	When code is run this is known as code being executed. Debugging is when we fix code that isn't working how it was designed to. Scenes can be made using backgrounds and objects. A well thought out program should be made from a plan.	Copy and paste features in e-book software can be used to speed up creation of additional pages.
Sequencing Knowledge	<p>Prior knowledge:</p> <p>Future knowledge:</p> <p>Year 2</p> <ul style="list-style-type: none"> • Share to a display board, • Approval process • Sharing online, • Email simulations • Emotional impact of communications <p>Year 3</p> <ul style="list-style-type: none"> • Good Passwords, and password privacy, • Communication methods, • Shared blog Reliability of information, and spoof websites • appropriate ratings, • emotional effects • Cyberbullying, • Reporting problems <p>Year 4</p> <ul style="list-style-type: none"> • Phishing, • Digital footprint, • Malware and viruses, • Plagiarism, • Screen time <p>Year 5</p> <ul style="list-style-type: none"> • Responsibility to others when sharing, • Sources of support, • SMART rules, • Sharing passwords Image manipulation, • Citing sources, • Searching • Reliability 	<p>Prior knowledge:</p> <p>Future knowledge</p> <p>Year 2</p> <p>Effective Searching (2.5)</p> <ul style="list-style-type: none"> • Developing understanding of the Internet • Identifying parts of a web search engine <p>Year 3</p> <p>Email (3.5)</p> <ul style="list-style-type: none"> • Investigating how technology is used to communicate electronically Simulations (3.7) • Exploring use of technology to safely replicate a real-life situation <p>Year 4</p> <p>Effective Searching (4.7)</p> <ul style="list-style-type: none"> • Structuring effective search queries over the Internet • Questioning reliability of sources Hardware Investigators (4.8) • Understanding the functions of the parts of a computer AI (4.10) • Understand current and future uses of artificial intelligence • Develop creative AI use in music and art <p>Year 6</p> <p>Blogging (6.4)</p> <ul style="list-style-type: none"> • Investigating how blogs are used to communicate Networks (6.6) • Research into the Internet and the World Wide Web • LAN and WAN 	<p>Prior knowledge:</p> <p>Future knowledge:</p> <p>Year 1</p> <p>Pictograms (1.3)</p> <ul style="list-style-type: none"> • Presenting data in a picture format. <p>Year 2</p> <p>Graphing (3.8)</p> <ul style="list-style-type: none"> • Investigating different ways of presenting data. • Displaying and interrogating data in a graph form using 2Graph. <p>Year 3</p> <p>Branching Databases (3.6)</p> <ul style="list-style-type: none"> • Learning to sort and interrogate data. • Creating a branching database using 2Question <p>Year 4</p> <p>Year 5</p> <p>Databases (5.4)</p> <ul style="list-style-type: none"> • Effective searching and sorting of information using a database. • Collaborative creation of a class database using 2Investigate. 	<p>Prior knowledge:</p> <p>Year 1</p> <p>Grouping and Sorting (1.2)</p> <ul style="list-style-type: none"> • Sorting data according to criteria <p>Future knowledge:</p> <p>Year 2</p> <p>Graphing (3.8)</p> <ul style="list-style-type: none"> • Displaying and interrogating data in a graph form using 2Graph <p>Year 3</p> <p>Spreadsheets (3.3)</p> <ul style="list-style-type: none"> • Use of 2Calculate to collect data and produce a variety of graphs Branching Databases (3.6) • Sorting and interrogating data <p>Year 4</p> <p>Spreadsheets (4.3)</p> <ul style="list-style-type: none"> • Presenting data through line graphs <p>Year 5</p> <p>Databases (5.4)</p> <ul style="list-style-type: none"> • Effective searching and sorting of information • Collaborative creation of a class database using 2Investigate <p>Year 6</p> <p>Spreadsheets with Google Sheet (6.9)</p> <ul style="list-style-type: none"> • Organising data • Creating graphs and charts 	<p>Prior knowledge:</p> <p>Year 1-</p> <p>Coding (1.7)</p> <p>Concept of computers following given instructions • Planning using an algorithm design</p> <p>Technology Maze Explorers (1.5)</p> <ul style="list-style-type: none"> • Concept of computers following given instructions • Program logic and structure <p>Year 2</p> <p>Coding (2.1)</p> <ul style="list-style-type: none"> • Algorithms • Collision detection • Timers • Object types • Buttons <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Code, test, debug process • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables Branching Databases (3.6) • Logical decision processing • Modelling selection on a binary model. <p>Year 4</p> <p>Coding (4.1)</p> <ul style="list-style-type: none"> • Code, test, debug process • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables Logo (4.5) • Text-based coding • Utilize understanding of coding structures Animation (4.6) • Sequencing and animation in logical steps <p>Year 5</p> <p>Coding (5.1.)</p>	<p>Prior knowledge:</p> <p>Year 1-</p> <p>Lego Builders (1.4)</p> <ul style="list-style-type: none"> • Logical decision making • Sequencing instructions • Following instructions <p>Future knowledge:</p> <p>Coding (1.7)</p> <ul style="list-style-type: none"> • Introducing block coding • Objects, actions and events • Executing a program • Debugging <p>Year 2</p> <p>Coding (2.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment. • Logical planning of sequences. • Debugging skills <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment. • Logical planning of sequences. • Debugging skills Branching Databases (3.6) • Logical decision processing. • Forward planning to achieve a solution. <p>Year 4</p> <p>Coding (4.1)</p> <ul style="list-style-type: none"> • Code, test, debug process • Selection and repetition algorithms • Number Variables Logo (4.5) • Text-based coding for directional instructions • Utilize understanding of coding structures Animation (4.6) • Sequencing and animation in logical steps <p>Year 5</p> <p>Coding (5.1.)</p> <ul style="list-style-type: none"> • Familiarity with a code environment. • Logical planning of sequences, selection and repetition. • Debugging skills Game Creator (5.5) 	<p>Prior Learning</p> <p>Future knowledge:</p> <p>Year 2 - Coding</p> <p>Algorithms</p> <ul style="list-style-type: none"> • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3 - Coding</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4 - Coding</p> <p>Code, test, debug process</p> <ul style="list-style-type: none"> • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables <p>Year 5 - Coding</p> <p>Efficient Coding</p> <ul style="list-style-type: none"> • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation <p>Year 6 - Coding</p> <p>Using Functions</p> <ul style="list-style-type: none"> • Flowcharts and Control Simulations • User Input 	<p>Prior knowledge:</p> <p>Year 1</p> <p>Exploring Purple Mash (1.1)</p> <ul style="list-style-type: none"> • General use of Purple Mash • Design: avatar creation • Paint Projects: use of the simple paint tools <p>Future knowledge:</p> <p>Year 2</p> <p>Creating Pictures (2.6)</p> <ul style="list-style-type: none"> • 2Paint a Picture: art effects, collage effects Making Music (2.7) • Digitally creating music and sound effects Presenting Ideas (2.8) • Exploring how stories can be presented in different ways <p>Year 3</p> <p>Year 4</p> <p>Animation (4.6)</p> <ul style="list-style-type: none"> • Create a stop motion animation using 2Animate • Use of sounds and backgrounds <p>Year 5</p> <p>Game Creator (5.5)</p> <ul style="list-style-type: none"> • Themed art • Animating 3D characters • Adding a gaming element to animation <p>Year 6</p> <p>Text Adventures (6.5)</p> <ul style="list-style-type: none"> • Plan and create a story-based adventure in 2Create a Story • Full functionality including animation, backgrounds, sound effects

					<ul style="list-style-type: none"> • Efficient Coding • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation External Devices (5.9) • Program an external device • Program an external controller using inputs and outputs. • Monitor real world conditions • Code, test, debug <p>Year 6 Coding (6.1)</p> <ul style="list-style-type: none"> • Using Functions • Flowcharts and Control Simulations • User Input Text Adventures (6.5) • Development from text-based coding • Maintaining a mental map. • Debugging skills 	<ul style="list-style-type: none"> • Movement in 3D • Animating characters. • Adding a gaming element to actions 3D Modelling (5.6) • Art effects in 3D • Moving and designing in 3 dimensions. • Precision art tool use <p>Year 6 Coding (6.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment. • Logical planning of sequences, selection, repetition and functions. • Debugging skills Text Adventures (6.5) • Development from text-based coding skills • Maintaining a mental map. • Debugging skills • Planning skills 		
Vocabulary: Show and Grow words	Log in Username Password Log out Notification Avatars Tools Save Online safety	Computer Technology	Sort Criteria	Pictogram Data Collate	Instruction Algorithm Debug Computer Program	Direction Challenge Arrow Undo Rewind Forward Backwards Right turn Left turn	Animation E Book Font File Sound effect Display board	Action Background Code Command Debugging Event Execute Input Object Properties Sound Scale Run Scene

Year 2							
Theme:	Unit 2.2 - Online safety	Unit 2.5 - Effective Searching	Unit 2.6 - Creating pictures	Unit 2.8 Presenting	Unit 2.4 - Questioning (Just lesson 1) Combine with Unit 3. 8 - Graphing	Unit 2.7 - Making Music	Unit 2.1 Coding
Term:	Autumn 1	Autumn 1	Autumn 2	Summer 2	Spring 2	Spring 1	Summer 1
National Curriculum:	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.	Recognise common uses of information technology beyond school.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.				<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>Create and debug simple programs.</p> <p>Use logical reasoning to predict the behaviour of simple programs.</p>

<p>Specific content Substantive Knowledge</p>	<p>Searches can be refined so it is easier to find something.</p> <p>Work can be shared in a variety of ways.</p> <p>Email is a way of communicating and know that in this form of communication, as with others, you need to be considerate of the user.</p> <p>The term digital footprint relates to information that a user puts online, and that this footprint may remain even when we think we have removed the information.</p>	<p>The Internet is a global network of connected computers around the World.</p> <p>The World Wide Web refers to the documents and pages someone sees when using a browser. Websites can be found using a browser that contains a search engine. Search engines use millions of people's digital footprints to help provide more accurate results.</p> <p>To find results that we want on a search engine, we need to search effectively.</p>	<p>Computer drawing programs contain palettes. Palettes are the range of colours or shapes available to the users.</p> <p>Computer drawing programs may have a choice of painting effects. Painting effects can be combined to help a user make pictures.</p> <p>The size of an onscreen painting tool brush stroke can be manipulated.</p> <p>Intensity of colours can be manipulated.</p> <p>Outline features in drawing programs help a user with the formation of paintings.</p> <p>Fill tools speed up the process of colouring enclosed areas on a painting.</p> <p>Pattern tools can be used to create repeating patterns and manipulate how a pattern is arranged.</p> <p>An eCollage template is available in programs like 2Paint that let's a user create stamps that can be used to add to a picture or build up a picture.</p>	<p>Digital content can be presented in many forms</p> <p>Quizzes can be made using programs such as 2Quiz.</p> <p>Digital content should be presented using a suitable format</p> <p>Digital content in one format can be re-used in other formats to present to audiences.</p>	<p>Pictograms created through software or physically are of limited use beyond answering simple questions.</p> <p>Information can be separated by using yes/no questions.</p> <p>A binary tree is a simple way of sorting information into two categories. When using a binary tree, users can only ask yes/no questions to find a specific piece of information.</p> <p>Databases are a computerised system that make it easy to search, select and store information. Databases contain records which have a variety of information about a specific entry.</p>	<p>Music can be made digitally using programs like 2Sequence.</p> <p>Sounds can be incorporated into music programs to make a melody.</p> <p>The speed of a digital musical composition known as tempo can be altered.</p> <p>The volume of instruments/sounds on a track can be changed when using music programs.</p> <p>Additional features, such as changing the number of bars and looping a composition, are available in music programs.</p> <p>Music programs let users incorporate their own sounds into a composition.</p>	<p>In computing, a set of instructions is known as an algorithm. Steps in an algorithm must be followed in order to achieve the intended outcome.</p> <p>Code can be created that detects when two objects have collided. This code can have an action associated with it. For example, if an alien ship (object) collides with a planet (object) a crash sound is heard (Action). We call this collision detection in 2Code.</p> <p>Programs follow a sequence of instructions (commands) in order. Timers can be introduced into programs to make parts of the program run after a set time. In 2Code, you can use a timer after command to delay the number of seconds until specific parts of a program are run.</p> <p>A computer program in 2Code can include objects that are different types. Each object type will have attributes (properties) that can be modified.</p> <p>Events in computer programs cause a block of code to be run. Events could be the result of a user pressing a key or clicking the screen. Event commands in 2Code are used to create blocks of code that are run when an event happens. There are different event command blocks in 2Code.</p> <p>Buttons are an object type in 2Code. Buttons use the 'When Clicked' event and will run a piece of code when they are clicked on.</p> <p>Bugs when referring to computer programs, are bits of code that are stopping a program from working how it was intended. Debugging is the process of looking for any problems in code, fixing the</p>
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							problems and repeatedly testing them.
Sequencing Knowledge	<p>Prior knowledge: Year 1</p> <ul style="list-style-type: none"> • Safe logins • Concept of privacy • Concept of ownership • The need to logout. <p>Future knowledge:</p> <p>Year 3</p> <ul style="list-style-type: none"> • Good Passwords and password privacy • Communication methods • Shared blog Reliability of information and spoof websites • appropriate ratings • emotional effects • Cyberbullying • Reporting problems <p>Year 4</p> <ul style="list-style-type: none"> • Phishing • Digital footprint • Malware and viruses • Plagiarism • Screen time <p>Year 5</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Sources of support • SMART rules • Sharing passwords Image manipulation • Citing sources • Searching • Reliability <p>Year 6</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time • Being a bystander 	<p>Prior knowledge: Year 1</p> <p>Online Safety and PM (1.1)</p> <ul style="list-style-type: none"> • Safe logins • Using Purple Mash search functionality <p>Technology Outside School (1.6)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose <p>Year 2</p> <p>Online Safety (2.2)</p> <ul style="list-style-type: none"> • Sharing to a display board • Sharing online • Digital footprint <p>Future knowledge:</p> <p>Year 3</p> <p>Online Safety (3.1)</p> <ul style="list-style-type: none"> • Reliability of information and spoof websites • Appropriate ratings • Reporting problems <p>Year 4</p> <p>Online Safety (4.1)</p> <ul style="list-style-type: none"> • Phishing • Digital footprint • Malware and viruses • Plagiarism <p>Effective Searching (4.7)</p> <ul style="list-style-type: none"> • Using a search engine • Reliable sources • Search algorithms - impact on what you see <p>Year 5</p> <p>Online Safety (5.2)</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Sources of support • SMART rules • Sharing passwords <p>Image manipulation • Citing sources • Searching • Reliability</p> <p>Word Processing (5.8)</p> <ul style="list-style-type: none"> • Plagiarism • Citing sources <p>Year 6</p> <p>Online Safety (6.2)</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time Networks (6.6) <p>Origins of the Internet and the World Wide Web • LAN and WAN</p> <ul style="list-style-type: none"> • Research 	<p>Prior knowledge: Year 1</p> <p>Exploring Purple Mash (1.1)</p> <ul style="list-style-type: none"> • General use of Purple Mash • Design: avatar creation • Paint Projects: use of the simple paint tools <p>Animated Story Books (1.6)</p> <ul style="list-style-type: none"> • 2Create a Story: Painting tool. • Animating images using built in effects • Concept of background (static) and foreground (can move) <p>Future knowledge:</p> <p>Year 2</p> <p>Presenting Ideas (2.8)</p> <ul style="list-style-type: none"> • Exploring how stories can be presented in different ways <p>Year 3</p> <p>Online Safety (3.1)</p> <ul style="list-style-type: none"> • Reliability of information and spoof websites • Appropriate ratings • Reporting problems <p>Year 4</p> <p>Animation (4.6)</p> <ul style="list-style-type: none"> • Create a stop motion animation using 2Animate • Use of art tools to create backgrounds and effects <p>Year 5</p> <p>Game Creator (5.5)</p> <p>Themed art to create characters, backgrounds and other effects</p> <p>3D Modelling (5.6)</p> <ul style="list-style-type: none"> • Art effects in 3D • Moving and designing in 3 dimensions • Precision art tool use <p>Year 6</p> <p>Text Adventures (6.5)</p> <ul style="list-style-type: none"> • Plan and create a story-based adventure in 2Create a Story • Full functionality including animation, backgrounds, sound effects 	<p>Prior knowledge: Year 1</p> <p>Animated Story Books (1.6)</p> <ul style="list-style-type: none"> • Creating text and the use of illustrations • Genre: animated picture book <p>Year 2</p> <p>Creating Pictures (2.6)</p> <ul style="list-style-type: none"> • Presenting ideas in art form • 2Paint a Picture: art effects, collage effects <p>Future knowledge:</p> <p>Year 3</p> <p>Touch Typing (3.4)</p> <ul style="list-style-type: none"> • Keyboard skills • Typing fluency <p>Presenting with Google Slides (3.9)</p> <ul style="list-style-type: none"> • Learning about good presentations: both content and delivery <p>Year 4</p> <p>Writing for Different Audiences (4.4)</p> <ul style="list-style-type: none"> • Considering different audiences and genres • Understanding importance of text formatting • Transferring information from a concept map into a written report <p>Year 5</p> <p>Word Processing with Google Docs (5.8)</p> <ul style="list-style-type: none"> • Developing text skills for effective documents • Applying good presenting skills to a more complex environment <p>Year 6</p> <p>Blogging (6.4)</p> <ul style="list-style-type: none"> • Considering blogging as a way of presenting ideas • Planning, writing and sharing blog posts <p>Text Adventures (6.5)</p> <ul style="list-style-type: none"> • Consideration of audience when planning • Use of a variety of tools to create a final piece of work 	<p>Prior knowledge: Year 1</p> <p>Grouping and Sorting (1.2)</p> <ul style="list-style-type: none"> • Sorting data according to criteria <p>Pictograms (1.3)</p> <ul style="list-style-type: none"> • Collecting and presenting data in a picture format <p>Future knowledge:</p> <p>Year 3</p> <p>Spreadsheets (3.3)</p> <ul style="list-style-type: none"> • Collecting data • Producing a graph <p>Branching Databases (3.6)</p> <ul style="list-style-type: none"> • Sorting and interrogating data <p>Year 4</p> <p>Spreadsheets (4.3)</p> <ul style="list-style-type: none"> • Inputting and examining data • Presenting data through line graphs <p>Year 5</p> <p>Databases (5.4)</p> <ul style="list-style-type: none"> • Effective searching and sorting of information • Collaborative creation of a class database using 2Investigate <p>Year 6</p> <p>Spreadsheets with Google Sheets (6.9)</p> <ul style="list-style-type: none"> • Organising data • Creating graphs and charts 	<p>Prior knowledge: Year 1</p> <p>Animated Story Books (1.6)</p> <ul style="list-style-type: none"> • Adding simple sound effects to stories in 2Create a Story <p>Future knowledge:</p> <p>Year 4</p> <p>Animation (4.6)</p> <ul style="list-style-type: none"> • Use of music and sounds in stop animation creation <p>Year 5</p> <p>Game Creator (5.5)</p> <ul style="list-style-type: none"> • Adding sound effects and background music to themed 3D games <p>Year 6</p> <p>Text Adventures (6.4)</p> <ul style="list-style-type: none"> • Creation of a story-based adventure in 2Create a Story • Full functionality including background music and sound effects 	<p>Year 1- Coding</p> <ul style="list-style-type: none"> • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning. <p>Future knowledge:</p> <p>Year 3 - Coding</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4 - Coding</p> <p>Code, test, debug process</p> <ul style="list-style-type: none"> • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables <p>Year 5 - Coding</p> <p>Efficient Coding</p> <ul style="list-style-type: none"> • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation <p>Year 6 - Coding</p> <p>Using Functions</p> <ul style="list-style-type: none"> • Flowcharts and Control Simulations • User Input
<p>Vocabulary: Show and Grow words</p> <p>New vocabulary</p>	<p>Search</p> <p>Display board</p> <p>Internet</p> <p>Sharing</p> <p>Email</p> <p>Attachment</p> <p>Digital Footprint</p>	<p>Internet</p> <p>Search</p> <p>Search engine</p>	<p>Impressionism</p> <p>Palette</p> <p>Share</p> <p>Surrealism</p> <p>Template</p>	<p>Concept map</p> <p>Node</p> <p>Narrative</p> <p>Animated</p> <p>Presentation</p>	<p>Collate</p> <p>Data</p> <p>Avatar</p> <p>Pictogram</p> <p>Question</p> <p>Binary tree</p> <p>Database</p>	<p>BPM (beats per minute)</p> <p>Composition</p> <p>Digitally</p> <p>Sound effect</p> <p>Soundtrack</p>	<p>Properties</p> <p>Event</p> <p>Object</p> <p>Algorithm</p> <p>Button</p> <p>Collision detection</p> <p>Nesting</p> <p>Predict</p> <p>Test</p> <p>Timer</p> <p>Text</p> <p>Sequence</p>

Year 3							
Theme:	Unit 3.2 - Online safety	Unit 3.6 - Branching Databases	Unit 3.4 Touch Typing	Unit 3. 5 - Email Digital literacy and computer science	Unit 3.3 - Spreadsheet (use the crash course unit, which fills in gaps from KS1)	Unit 3.1 - Coding	Unit 3.9 - Presenting (with Google Slides)
Term:	Autumn 1	Autumn 2	Spring 1	Spring 1	Spring 2	Summer 1	Summer 2
National Curriculum:	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	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. 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.	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 purposefully to create, organise, store, manipulate and retrieve digital content. 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	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.
Specific content Substantive Knowledge	<p>Passwords are private and should never be shared.</p> <p>Blogs can help us to communicate our thoughts and ideas.</p> <p>Not everything online is factually correct, and some websites can be referred to as spoof websites.</p> <p>PEGI / BBFC ratings exist to keep young people safe and steps can be taken should students see inappropriate content.</p>	<p>Objects can be sorted using yes/no questions and relate this to how computer binary databases work</p> <p>Branching databases can be created using programs such as 2Question.</p> <p>It is important to test and debug if needed when creating branching databases so that they work as intended.</p>	<p>Typing is the action or skill of writing something by means of a keyboard (physical or virtual) and that it is important to have a good posture when typing.</p> <p>Home, top and bottom row keys are areas on a keyboard where specific keys are located.</p> <p>To be an efficient at typing hands should be positioned correctly on a keyboard and that the left and right hands should work independently of each other.</p>	<p>There are different methods of communication and they each have strengths and weaknesses.</p> <p>Emails are electronic versions of letters, and they can be sent and received almost instantly to anyone with an email address.</p> <p>It's important to use email systems safely and that there are things people can do to try to keep themselves safe.</p> <p>Pictures, documents and other file types can be attached to emails.</p> <p>Address books can be made in email clients which store known contacts' email addresses. When sending an email we can use an address and send to multiple people.</p>	<p>Graphs can be generated from data within a sheet. If data is changed on the sheet, then the graph automatically updates to recognise these amendments.</p> <p>The more than, less than and equals tools serve a purpose to define a number.</p> <p>Cells all have their own individual address. They are referenced using letters and numbers.</p>	<p>Flowcharts are a type of diagram that use specifically shaped labelled boxes and arrows to represent an algorithm as a diagram.</p> <p>Timers are used in coding to help control when a block of commands are run.</p> <p>Timer commands can be run after a timed delay or at regular intervals. In 2Code there are two timer options, timer every or timer after.</p> <p>These can be altered by changing the number of seconds/quarter seconds.</p> <p>Repeat is a control block and blocks of commands can be set to repeat a specified number</p>	<p>Presentation software is a way of creating and displaying information to an audience that is clear and engaging.</p> <p>Simple presentations can be made quickly by using features such as textboxes, word art and images.</p> <p>Presentations can include additional slides, video and audio.</p> <p>Shapes and lines can be added to slides.</p> <p>Animations can be incorporated within Google Slides files.</p> <p>Transitions can be applied between slides.</p>

						of times using the repeat control block. Testing, debugging and fixing are an important part of the process of making computer programs. Understanding what nesting is and the effect it has on a program can help when trying to debug a program.	Designs of slides can be changed.
Sequencing Knowledge	<p>Prior knowledge: Year 1 • Safe logins • Concept of privacy • Concept of ownership • The need to logout.</p> <p>Year 2 • Share to a display board • Approval process • Sharing online • Email simulations • Emotional impact of communications</p> <p>Future knowledge:</p> <p>Year 4 • Phishing • Digital footprint • Malware and viruses • Plagiarism • Screen time</p> <p>Year 5 • Responsibility to others when sharing • Sources of support • SMART rules • Sharing passwords Image manipulation • Citing sources • Searching • Reliability</p> <p>Year 6 • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time • Being a bystander</p>	<p>Prior knowledge: Year 1- Sorting and Grouping (1.2) • Sorting data according to criteria Pictograms (1.3) • Collecting and presenting data in a picture format</p> <p>Year 2 Questioning (2.4) • Enquiry into different data handling tools • Use of questioning to separate and group data Graphing (3.8) • Displaying and interrogating data in a graph form using 2Graph</p> <p>Future knowledge: Year 4 Spreadsheets (4.3) • Inputting and examining data • Presenting data through line graphs</p> <p>Year 5 Databases (5.4) • Effective searching and sorting of information • Collaborative creation of a class database using 2Investigate</p> <p>Year 6 Spreadsheets with Google Sheets (6.9) • Organising data • Creating graphs and charts</p>	<p>Prior knowledge: Year 1- Exploring Purple Mash (1.1) General use of Purple Mash • Simple text entry • Use of a writing template</p> <p>Year 2 Effective Searching (2.5) • Efficient use of a search engine • Leaflet creation Presenting Ideas (2.8) • Presenting ideas in a variety of styles including through typed text</p> <p>Future knowledge Year 3 Email (3.5) • Considering communication styles • Responding to email simulations</p> <p>Year 4 Writing for Different Audiences (4.4) • Discussion of effectiveness of different written material • Opportunities to type in a variety of styles Effective Searching (4.7) • Efficient structure of search queries • Answering written questions</p> <p>Year 5 Concept Maps (5.7) • Using concept maps to make visual connections • Creating and presenting an information text Word Processing (5.8) • Use of Google Docs to develop text skills for effective documents • Familiarity with the formatting and text use for a variety of genres of documents</p> <p>Year 6 Blogging (6.4) • Develop of text and typing skills through the creation of a blog • Considering the impact of different communication styles Text Adventures (6.5) • Children extend their text and typing stamina through the planning and creation of a text-based adventure game</p>	<p>Prior knowledge: Year 1 Online Safety and PM (1.1) • Safe logins • Concept of privacy • Concept of ownership Technology Outside School (1.6) • Developing ideas about the concept of technology that we are surrounded by and its purpose</p> <p>Year 2 Online Safety (2.2) • Sharing online • Email simulations • Emotional impact of communications • Digital footprint Effective Searching (2.5) • Exploration of what the Internet is • Accessing the World Wide Web • Digital Footprint • Searching and sharing</p> <p>Year 3 Online Safety (3.2) • Good Passwords and password privacy • Communication methods • Cyberbullying and reporting problems</p> <p>Future knowledge: Year 4 Online Safety (4.2) • Phishing • Digital footprint • Plagiarism • Screen time Effective Searching (4.7) • Reliable sources • Search algorithms - impact on what you see</p> <p>Year 5 Online Safety (5.2) • Responsibility to others when sharing • Sources of support • SMART rules • Sharing passwords • Searching • Reliability</p> <p>Year 6 Online Safety (6.2) • Minimising exposure to risks • Sources of support • Screen time Blogging (6.4) • Impact of communication on the audience • Appropriate comments</p>	<p>Prior knowledge: Year 1 (Pictograms) • What is data? • Representing data Year 2 (Questioning) • Ways to represent data • Pictograms (2Count) • Binary trees (2Question)</p> <p>Future knowledge: Year 4 • Formula wizard • Cell formatting • Timer, random number and spin buttons • Budget planner sheet • Line graphs Year 5 (Databases) • Data representation in 2Investigate • Creating and interrogating data • Use of filter, sort and search Year 6 • Spreadsheets for computational models • Probability using random functionality • Budgeting • Event planning</p>	<p>Prior knowledge: Year 1- Coding • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning</p> <p>Year 2 - Coding Algorithms • Collision detection • Timers • Object types • Buttons • Debugging</p> <p>Future knowledge: Year 4 - Coding Code, test, debug process • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables</p> <p>Year 5 - Coding Efficient Coding • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation</p> <p>Year 6 - Coding Using Functions • Flowcharts and Control Simulations • User Input</p>	<p>Prior knowledge: Year 1 Animated Storybooks (1.6) • Creating text and the use of illustrations • Genre: animated picture book</p> <p>Year 2 Creative Pictures (2.6) • Presenting ideas in art form • 2Paint a Picture: art effects, collage effects Presenting (2.8) • Creating work for a variety of purposes and different genres • Presenting the same information in different styles: animated story, quiz based on a story, concept map of a story, writing template</p> <p>Year 3 Touch Typing (3.4) • Keyboard skills • Typing fluency</p> <p>Future knowledge: Year 4 Writing for Different Audiences (4.4) • Considering different audiences and genres • Understanding importance of text formatting • Transferring information from a concept map into a written report</p> <p>Year 5 Word Processing (5.8) • Developing text skills for effective document presentation</p> <p>Year 6 Blogging (6.4) • Considering blogging as a way of presenting ideas • Planning, writing and sharing blog posts</p>

Vocabulary: Show and Grow words	Password Internet Blog Concept map Username Website Spoof website PEGI rating	Branching database Database Data Question	Posture Tap row keys Home row keys Bottom row keys Space bar	Communication Email Compose Send Cc Attachment Formatting Report to the teacher Password Address book Save to draft	Copy and paste Columns Advanced mode <>= symbols Cells Delete key Equals tool Spin tool Move cell tool rows Spreadsheet	Alert Develop Plan Blocks of command Action Algorithm Collision detection Nesting Debug Execute Object Predict Background Button Command Event Flowchart Output Procedure Repeat Sequence Scene Sound Test Properties Timer Values	Animation Audio Design templates Entrance Font Media Presentation Presentation program Slide Slideshow Stock image Text box Text formatting Transition
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Year 4								
Theme:	Unit 4.2 - Online safety	Unit 4.7 - Effective searching	Unit 4.8 - Hardware Investigators	Unit 4.5 - Logo	Unit 4.1 Coding	Unit 4.6 - Animation	Unit 4.3 - Spreadsheets	Unit 4.10 AI
Term:	Autumn 1	Autumn 2	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Summer 2
National Curriculum:	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	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.	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	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.	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.		
Specific content Substantive Knowledge	Safe protocols can be developed to protect people when using email. Everything put online leaves a trail known as a digital footprint. There are risks and benefits of installing software including apps.	Information can be located on a search engine page. There are different skills needed to research effectively. Web Pages need to be evaluated to see if the information contained is true and reliable.	Different parts make up a computer	2Logo has its own language with specific instructions. Representations of shapes, letters and flowers can be created in 2Logo using the repeat command. The repeat command is a more efficient way to code in 2Logo.	There are objects in 2Code and that there are different types and these have attributes (properties) that can be changed. Backgrounds can be changed and manipulated. Selection is a term used in computer programming. That it is a decision	Some animations are created by hand and others with the help of technology. Onion skinning is a term used in animation and can make the animation process more efficient.	It is possible to input numbers into a spreadsheet in different formats including the use of a decimal point. Formulas can be added to a spreadsheet to speed up calculations when data is changed.	Artificial intelligence is having an impact already in day-today life. Artificial intelligence can assist and benefit us in our everyday life. The potential of artificial intelligence is limitless.

	<p>Copying the work of others and presenting it as their own is called 'plagiarism'.</p> <p>There are positive and negative influences of technology on health and the environment.</p>			<p>It is important to test and debug code in 2Logo as with other coding platforms to ensure it runs effectively.</p>	<p>command that will be run dependent on whether a condition is met.</p> <p>If statements are used to create selection in 2Code and that they are bits of code that will run only if a condition is true.</p> <p>Coordinates are used in computer programming to determine the position of a point, shape or object and that these change according to where they are positioned on the screen.</p> <p>Repeat until is a control block and that blocks of code will repeat until a condition is met.</p> <p>If/else statements are a conditional command that tests a statement. If a condition is true, commands inside the if block will run. If a condition is false, commands inside the else block will run.</p> <p>Variables are a virtual container (A place in computer memory) that contain a value that can change. The value is normally in the format of a number or letter. Variables are used in programming to keep track of things that can change such as the score in a computer game. There are 3 main types that be created using 2Code</p>	<p>Sound can be added to animation to enhance the finished product.</p> <p>The term stop frame animation refers to animation where the stopping and starting of a camera gives an object the impression of movement.</p>	<p>There is specific functionality of some of the tools within 2Calculate.</p> <p>A spreadsheet can create a range of graphs and charts and these can be interrogated.</p> <p>Spreadsheets can be used to model a real-life situation and improve the efficiency of day to day tasks.</p> <p>A value can be added to images in 2Calculate to make a resource to teach place value.</p>	<p>Artificial intelligence is already being used to create music and art.</p>
Sequencing Knowledge	<p>Prior knowledge: Year 1</p> <ul style="list-style-type: none"> • Safe logins • Concept of privacy • Concept of ownership • The need to logout. <p>Year 2</p> <ul style="list-style-type: none"> • Share to a display board • Approval process • Sharing online • Email simulations • Emotional impact of communications <p>Year 3</p> <ul style="list-style-type: none"> • Good Passwords and password privacy • Communication methods • Shared blog • Reliability of information 	<p>Prior knowledge: Year 1-</p> <p>Online Safety and Exploring Purple Mash (1.1)</p> <ul style="list-style-type: none"> • Safe logins • Using Purple Mash search functionality <p>Technology Outside School (1.6)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose <p>• Developing ideas about the concept of technology that we are surrounded by and its purpose</p> <p>Year 2</p> <p>Online Safety (2.2)</p> <ul style="list-style-type: none"> • Sharing to a display board • Sharing online • Digital footprint <p>Effective Searching (2.5)</p> <ul style="list-style-type: none"> • Exploration of what the Internet is • Accessing the World Wide Web • Digital 	<p>Prior knowledge: Year 1-</p> <p>Technology Outside School (1.6)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose <p>Understanding that many devices use computational technology</p> <p>Year 2</p> <p>Effective Searching (2.5)</p> <ul style="list-style-type: none"> • Exploration of what the Internet is and how devices allow connections to access functions and the World Wide Web • Searching and sharing <p>Year 3</p> <p>Email (3.5)</p>	<p>Prior knowledge: Year 1-</p> <p>Lego Builders (1.4)</p> <ul style="list-style-type: none"> • Logical decision making, • Sequencing instructions, • Following instructions <p>Maze Explorers (1.5)</p> <ul style="list-style-type: none"> • Visual use of the Logo programming language. • Program logic and structure <p>Coding (1.7)</p> <ul style="list-style-type: none"> • Familiarity with a code environment • Logical planning of sequences • Debugging skills <p>Year 2</p> <p>Coding (2.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment. • Logical planning of sequences • Debugging skills <p>Questioning (2.4)</p>	<p>Prior knowledge: Year 1- Coding</p> <ul style="list-style-type: none"> • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning <p>Year 2 - Coding</p> <p>Algorithms</p> <ul style="list-style-type: none"> • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3 - Coding</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Future knowledge:</p>	<p>Prior knowledge: Year 1-</p> <p>Exploring Purple Mash (1.1)</p> <ul style="list-style-type: none"> • General use of Purple Mash • Design: avatar creation • Paint Projects: use of the simple paint tools <p>Animated Stories (1.6)</p> <ul style="list-style-type: none"> • 2Create a Story: Painting tool. • What animation is • Animating images using built in effects • Concept of background (static) and foreground (can move) <p>Year 2</p> <p>Creating Pictures (2.6)</p> <ul style="list-style-type: none"> • 2Paint a Picture: art effects, collage effects 	<p>Prior knowledge: Year 1 (Pictograms)</p> <ul style="list-style-type: none"> • What is data? • Representing data <p>Year 2 (Questioning)</p> <ul style="list-style-type: none"> • Ways to represent data • Pictograms (2Count) • Binary trees (2Question) <p>Year 3</p> <p>Pie charts and Bar graphs</p> <ul style="list-style-type: none"> • Boolean comparison tools (<=>) • Spin tool • Advanced mode • Cell references <p>Future knowledge: Year 5 (Databases)</p> <ul style="list-style-type: none"> • Data representation in 2Investigate • Creating and interrogating data 	<p>Prior knowledge: Year 1-</p> <p>Technology Outside of School (1.9)</p> <ul style="list-style-type: none"> • To look for places where technology is used in and out of school. <p>Year 4</p> <p>Hardware Investigators (4.8)</p> <ul style="list-style-type: none"> • To write about and understand the different parts of a <p>Future knowledge: Year 6</p> <p>Networks (6.6)</p> <ul style="list-style-type: none"> • Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/ another adult

	<p>and spoof websites</p> <ul style="list-style-type: none"> • appropriate ratings • emotional effects • Cyberbullying • Reporting problems <p>Future knowledge:</p> <p>Year 5</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Sources of support • SMART rules • Sharing passwords Image manipulation • Citing sources • Searching • Reliability <p>Year 6</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time • Being a bystander 	<p>Footprint • Searching and sharing</p> <p>Year 3</p> <p>Online Safety (3.2)</p> <ul style="list-style-type: none"> • Reliability of information and spoof websites • Appropriate ratings • Reporting problems <p>Year 4</p> <p>Online Safety (4.2)</p> <ul style="list-style-type: none"> • Phishing • Digital footprint • Malware and viruses • Plagiarism <p>Future knowledge:</p> <p>Year 5</p> <p>Online Safety (5.2)</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Sources of support • SMART rules • Image manipulation • Citing sources • Searching • Reliability <p>Word Processing (5.8)</p> <ul style="list-style-type: none"> • Plagiarism • Citing sources <p>Year 6</p> <p>Online Safety (6.2)</p> <ul style="list-style-type: none"> • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time Networks (6.6) • Origins of the Internet and the World Wide Web • LAN and WAN • Research 	<ul style="list-style-type: none"> • Using device functions for 2-way communication via the World Wide Web <p>Year 4</p> <p>Effective Searching (4.7)</p> <ul style="list-style-type: none"> • Understanding of the 2-way communication technologies using algorithms that run of the hardware AI (4.10) • Understand current and future uses of artificial intelligence • Develop creative AI use in music and art <p>Future knowledge:</p> <p>Year 6</p> <p>Blogging (6.4)</p> <ul style="list-style-type: none"> • Using device functions for 2-way communication via the World Wide Web Networks (6.6) • Origins of the Internet and the World Wide Web • LAN and WAN • Research 	<ul style="list-style-type: none"> • Logical decision processing • Forward planning to achieve a solution <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment • Logical planning of sequences • Debugging skills Branching Databases (3.6) • Logical decision processing • Forward planning to achieve a solution <p>Future knowledge:</p> <p>Year 4</p> <p>Coding (4.1)</p> <ul style="list-style-type: none"> • Familiarity with code environment • Logical planning of sequences and repetition • Debugging skills <p>Year 5</p> <p>Coding (5.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment • Logical planning of sequences and repetition. • Debugging skills Game Creator (5.5) • Themed art. • Art in 3D • Animating 3D characters. • Adding a gaming element to animation 3D Modelling (5.6) • Art effects in 3D • Moving and designing in 3 dimensions • Precision art tool use <p>Year 6</p> <p>Coding (6.1)</p> <ul style="list-style-type: none"> • Familiarity with a code environment • Logical planning of sequences, repetition and functions • Debugging skills Text Adventures (6.5) • Development from text-based coding skills • Maintaining a mental map. • Debugging skills • Planning skills 	<p>Year 5 - Coding</p> <p>Efficient Coding</p> <ul style="list-style-type: none"> • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation <p>Year 6 - Coding</p> <p>Using Functions</p> <ul style="list-style-type: none"> • Flowcharts and Control Simulations • User Input 	<p>Future knowledge:</p> <p>Year 5</p> <p>Game Creator (5.5)</p> <ul style="list-style-type: none"> • Themed art • Art in 3D • Animating 3D characters • Adding a gaming element to animation 3D Modelling (5.6) • Art effects in 3D • Moving and designing in 3 dimensions • Precision art tool use 	<ul style="list-style-type: none"> • Use of filter, sort and search <p>Year 6</p> <ul style="list-style-type: none"> • Spreadsheets for computational models • Probability using random functionality • Budgeting • Event planning 	
Vocabulary: Show and Grow words	<p>Computer virus</p> <p>Cookies</p> <p>Copyright</p> <p>Digital footprint</p> <p>Email</p> <p>Identity theft</p> <p>Phishing spam</p>	<p>Easter egg</p> <p>Internet</p> <p>Search</p> <p>Internet browser</p> <p>Search engine</p> <p>Spoof website</p> <p>Website</p>	<p>Motherboard</p> <p>Graphics card</p> <p>CPU (the part of the computer where operations are controlled)</p> <p>RAM (allows computers to store information)</p> <p>Network card</p> <p>Monitor</p> <p>Speakers</p> <p>keyboard and mouse</p>	<p>LOGO</p> <p>BK (backwards)</p> <p>FD (forwards)</p> <p>RT (turn right)</p> <p>LT (turn left)</p> <p>REPEAT</p> <p>SETPC (set pen to a given colour)</p> <p>SETPS</p>	<p>Action</p> <p>Alert</p> <p>Background</p> <p>Button</p> <p>Code block</p> <p>Command</p> <p>Debug</p> <p>Execute</p> <p>Flowchart</p> <p>Nesting</p> <p>Co-ordinate</p> <p>If</p>	<p>Animation</p> <p>Background</p> <p>Frame</p> <p>Flipbook</p> <p>Onion skinning</p> <p>Stop motion</p> <p>Play</p> <p>Sound</p> <p>Video clip</p>	<p>Average</p> <p>Advanced mode</p> <p>Copy and paste</p> <p>Columns</p> <p>Cells</p> <p>Charts</p> <p>Equals tool</p> <p>Formula</p> <p>Formula wizard</p> <p>Move cell tool</p> <p>Random tool</p> <p>Rows</p>	<p>Algorithm</p> <p>Artificial Intelligence</p> <p>Data</p>

				(set pen thickness) PU (lift the pen up off the screen) PD (put the pen back down)	Predict Prompt Prompt for input Repeat Properties Repeat until Selection Timer, Variable Variable value		Spin tool Spreadsheet Timer	
Year 5								
Theme:	Unit 5.2 - Online Safety	Unit 5.8 - Word Processing (Google)	Unit 5.5 - Game Creator	Unit 5.6 - 3D Modelling	Unit 5.1 - Coding	Unit 5.4 -Databases	Unit 5.9 - Using External Devices	
Term:	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Summer 2	
National Curriculum:	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	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. .			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.	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.	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.	
Specific content Substantive Knowledge	<p>The SMART rules are designed to keep children safe online.</p> <p>Passwords need to be kept secure.</p> <p>Care needs to be given when sharing content online.</p> <p>Sources should be referenced in work.</p> <p>Different forms of communication are best used for specific purposes.</p>	<p>A word processing tool can be used to create a range of documents and know how to navigate around them.</p> <p>Images can be added to a document.</p> <p>Images can be edited in.</p> <p>The look of text within a document can be changed.</p> <p>Various features within the program will enhance the documents look and usability.</p> <p>Google Docs can easily be shared with other people.</p> <p>Tables can be used to present information within a document.</p> <p>A template can be used to create a document.</p>	<p>It is important to plan out a game before commencing on making it.</p> <p>A game design program has specific functions for the designer to use.</p> <p>The design of characters and quest items is a key aspect of game creation.</p> <p>A finished game must be playable and possible for the player to complete.</p> <p>Evaluation is important so a game can be improved and made more playable and exciting.</p>	<p>3D modelling can be done via a computer program.</p> <p>Moving points changes the appearance of a 3D model.</p> <p>A 3D design program can be used to meet a design brief.</p> <p>Models need refining before they are printed out using a standard printer or 3D printer.</p>	<p>Code can be simplified to complete the same process with less lines of code. Simplified code runs faster and uses less processing memory, it is said to be more efficient. Computer generated variables in 2Code are tags given to objects and these can be used to control object types meaning less lines of code are needed.</p> <p>A simulation is a model that represents a real or imaginary situation. Plans of an algorithm that represents a real or imaginary situation can be created and then used to program a simulation in 2Code.</p> <p>The timer every command can be used to make code repeat forever.</p> <p>Decomposition is a method of breaking down a task into manageable components. This makes coding easier as the components can then be coded separately and then brought back together in the program.</p>	<p>A database can be used to search for information.</p> <p>Users can contribute to a collaborative database.</p> <p>Databases can be created to cover a range of topics or themes.</p>	<p>External devices can be used to control a coded program.</p> <p>An external device can be used as a game controller.</p> <p>Text can be outputted to an external device.</p> <p>An external device can be used to model real life situations</p> <p>A program can be written for the external device to meet a specific design brief.</p>	

					<p>Abstraction is a way of de-cluttering and removing unnecessary details to get a program functioning.</p> <p>A function is a block or sequence of code that can be accessed when it is needed. This means code doesn't have to be rewritten every time it is needed. Instead, the function can be called each time it is needed.</p> <p>Strings are text or a combination of text characters and numbers within programs. An example could be a program that has a string type variable that is used to keep a player informed of their progress in a game.</p> <p>Concatenation is the name given to the action of linking things together in a series. For example, in programs we might want to link words together to form random phrases that are seen by a user of a program.</p>		
Sequencing Knowledge	<p>Prior knowledge: Year 1</p> <ul style="list-style-type: none"> • Safe logins • Concept of privacy • Concept of ownership • The need to logout. <p>Year 2</p> <ul style="list-style-type: none"> • Share to a display board • Approval process • Sharing online • Email simulations • Emotional impact of communications <p>Year 3</p> <ul style="list-style-type: none"> • Good Passwords and password privacy • Communication methods • Shared blog • Reliability of information and spoof websites • appropriate ratings • emotional effects • Cyberbullying • Reporting problems <p>Year 4</p> <ul style="list-style-type: none"> • Phishing • Digital footprint • Malware and viruses • Plagiarism • Screen time <p>Future knowledge: Year 6</p>	<p>Prior knowledge: Year 1</p> <p>Coding (1.9)</p> <ul style="list-style-type: none"> • Introducing block coding <p>Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning</p> <p>Technology Outside School (1.9)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose • Understanding that many devices use computational technology • Use of 2Create a Story tool. <p>Year 2</p> <p>Coding (2.1)</p> <ul style="list-style-type: none"> • Algorithms • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4</p> <p>Coding (4.1)</p> <ul style="list-style-type: none"> • Code, test, debug process • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables <p>Logo (4.5)</p> <ul style="list-style-type: none"> • Text-based coding • Utilize understanding of coding structures <p>Hardware Investigators (4.8_</p>	<p>Prior knowledge: Year 1</p> <p>Exploring Purple Mash (1.1)</p> <ul style="list-style-type: none"> • General use of Purple Mash • Design: avatar creation • Paint Projects: use of the simple paint tools <p>Animated Storybooks (1.6)</p> <ul style="list-style-type: none"> • Animating images using built in effects in 2Create a Story • Concept of background (static) and foreground (can move). <p>Year 2</p> <p>Creating Pictures (2.6)</p> <ul style="list-style-type: none"> • 2Paint a Picture: art effects, collage effects <p>Making Music (2.7)</p> <ul style="list-style-type: none"> • Digitally creating music and sound effects <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4</p> <p>Animation (4.6)</p> <ul style="list-style-type: none"> • Create a stop motion animation using 2Animate • Use of sounds, backgrounds and effects <p>Future knowledge: Year 6</p> <p>Text Adventures (6.5)</p> <ul style="list-style-type: none"> • Plan and create a story-based adventure in 	<p>Prior knowledge: Year 1</p> <p>Animated Stories (1.6)</p> <ul style="list-style-type: none"> • Creating text and the use of illustrations to convey meaning • Genre: animated picture book <p>Year 2</p> <p>Presenting Ideas (2.8)</p> <ul style="list-style-type: none"> • Creating work for a variety of purposes • Presenting the same information in different styles: animated story, quiz based on a story, concept map of a story, writing template <p>Year 3</p> <p>Touch Typing (3.5)</p> <ul style="list-style-type: none"> • Keyboard skills • Typing fluency <p>Presenting with Google Slides (3.6)</p> <ul style="list-style-type: none"> • Learning about good presentations: both content and delivery <p>Year 4</p> <p>Writing for Different Audiences (4.4)</p> <ul style="list-style-type: none"> • Understanding importance of text formatting and organisation • Transferring information from a concept map into a written report <p>Year 5</p>	<p>Prior knowledge: Year 1- Coding</p> <ul style="list-style-type: none"> • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning <p>Year 2 - Coding</p> <p>Algorithms</p> <ul style="list-style-type: none"> • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3 - Coding</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4 - Coding</p> <p>Code, test, debug process</p> <ul style="list-style-type: none"> • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables <p>Future knowledge: Year 6 - Coding</p> <ul style="list-style-type: none"> • Flowcharts and Control Simulations • User Input 	<p>Prior knowledge: Year 1</p> <p>Grouping and Sorting (1.2)</p> <ul style="list-style-type: none"> • Sorting data according to criteria <p>Pictograms (1.3)</p> <ul style="list-style-type: none"> • Collecting and presenting data in a picture format <p>Year 2</p> <p>Questioning (2.4)</p> <ul style="list-style-type: none"> • Enquiry into different data handling tools • Use of questioning to separate and group data <p>Year 3</p> <p>Spreadsheets (3.3)</p> <ul style="list-style-type: none"> • Use of 2Calculate to collect data and produce a variety of graphs <p>Branching Databases (3.6)</p> <ul style="list-style-type: none"> • Sorting and interrogating data <p>Graphing (3.8)</p> <ul style="list-style-type: none"> • Displaying and interrogating data in a graph form. <p>Year 4</p> <p>Spreadsheets (4.3)</p> <ul style="list-style-type: none"> • Spreadsheets • Inputting and Interrogating data • Presenting data through line graphs <p>Future knowledge: Year 6</p>	<p>Prior knowledge: Year 1-</p> <p>Coding (1.7)</p> <ul style="list-style-type: none"> • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning <p>Technology Outside School (1.9)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose • Understanding that many devices use computational technology <p>Year 2</p> <p>Coding (2.1)</p> <ul style="list-style-type: none"> • Algorithms • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3</p> <p>Coding (3.1)</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4</p> <p>Coding (4.1)</p> <ul style="list-style-type: none"> • Code, test, debug process • IF statements

	<ul style="list-style-type: none"> • Responsibility to others when sharing • Minimising exposure to risks • Sources of support • Screen time • Being a bystander 	<p>Coding • Using Functions • Flowcharts and Control Simulations • User Input</p> <p>Future knowledge: Year 5 Coding (5.1) • Efficient Coding • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation</p> <p>Year 6 Coding (6.1) • Using Functions • Flowcharts and Control Simulations • User Input Text Adventures (6.5) • Development from text-based coding • Maintaining a mental map • Debugging skills Networks (6.6) • The hardware aspects of LAN and WAN</p>	2Create a Story • Full functionality including animation, backgrounds, sound effects	<p>Word Processing with MS Word or Google Docs • Developing text skills • Applying good presentation skills to a more complex document</p> <p>Future knowledge: Year 6 Blogging (6.4) • Creation of blog post, considering impact of presentation • Collaborative planning Text Adventures (6.5) • Consideration of audience when planning • Use of a variety of tools to create a final piece of work</p>		<p>Spreadsheets with Google sheets (6.4) • Organising data • Creating graphs and charts</p>	<ul style="list-style-type: none"> • Repeat Until and IF/ ELSE Statements • Number Variables Logo (4.5) • Text-based coding • Utilize understanding of coding structures <p>Year 5 Coding (5.1.) • Efficient Coding • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation</p> <p>Future knowledge: Year 6 Coding (6.1) Using Functions • Flowcharts and Control Simulations • User Input Text Adventures (6.5) • Development from text-based coding • Maintaining a mental map • Debugging skills Networks (6.6) • The hardware aspects of LAN and WAN</p>
<p>Vocabulary: Show and Grow words</p>	<p>Online safety Smart rules Password Reputable Encryption Identity theft Shared image Plagiarism Citations Reference Bibliography</p>	<p>Bulleted lists Copy and paste Cursor Hyperlink Caps lock Copyright Document Merge cells Captions Creative commons Font Page orientation Formatting Text wrapping Readability</p>	<p>Animation Computer game Customise Evaluation Image Instructions Interactive Screenshot Texture Perspective Playability</p>	<p>CAD (computer aided design) Modelling 3D Viewpoint Polygon 2D net 3D printing Points Template</p>	<p>Action Abstraction Algorithm Button Called Co-ordinates Decomposition Event If Nesting Function Object Properties Repeat Physical system Score Sequence Simplify Simulation Tab Timer Variable</p>	<p>Avatar Binary tree Charts Collaborative Data Database Find Record Sort, group and arrange Statistics and reports Table</p>	<p>Algorithm Host QR code Emulator Simulator Input Output External device Sensor</p>

Year 6						
Theme:	Unit 6.2 - Online Safety	Unit 6.4 - Blogging	Unit 6.6 - Networks	Unit 6.9 -Spreadsheets	Unit 6.5 -Text Adventures	6.1 - Coding
Term:	Autumn 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1 and 2
National Curriculum:	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	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.	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.	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.	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.	
Specific content Substantive Knowledge	<p>A game can be created to encourage the player to think about online safety.</p> <p>A digital footprint leaves a trail online to show their behaviour and this can have a negative impact.</p> <p>It is important to balance game and screen time with other parts of our lives.</p>	<p>A blog is an online vehicle for displaying thoughts and ideas in an informal style.</p> <p>It is important to plan out the theme and content of a blog before writing it.</p> <p>People can contribute to blogs by adding their own posts.</p> <p>Blog posts written by others can be commented on.</p>	<p>The difference between the World Wide Web and the Internet.</p> <p>LAN and WAN are different kinds of networks.</p> <p>The Internet has changed our lives in many ways.</p>	<p>A spreadsheet can be used to investigate a problem such as the frequency of a number rolled on a collection of die.</p> <p>A formula can be used to work out the new prices in a shop sale.</p> <p>A spreadsheet can be used to plan how to spend pocket money.</p> <p>A spreadsheet can be used to plan out a school charity day.</p>	<p>A text adventure is a computer game that uses text instead of graphics.</p> <p>Concept map plans for a story adventure can be used to plan the text-based adventure game.</p> <p>It is important to have a good level of coding comprehension in order the understand how a text adventure works.</p> <p>Debugging is a key part of coding and essential if code is to run properly</p>	<p>Number elements combined with a number variable and an if/else statement can be used to create an onscreen countdown timer. Selection can be achieved through the use of if/else statements.</p> <p>The coordinates of objects can be used in code such as moving the position of them. The position of an object on the screen in 2Code is referenced using x and y coordinates.</p> <p>The launch command can be used within 2Code to open another Purple Mash file or an external website when it is called in a program.</p> <p>2Code contains tabs in the coding view. Tabs can be used to help organise code.</p> <p>Using functions helps with making programs more efficient. Instead of writing the same sequence of code repeatedly when needed, a function can be created and called when required. Procedures are an independent piece of code. In 2Code, a procedure might be coded as a function.</p> <p>Flowcharts can represent procedures within a program. Flowcharts can be referenced when a program is executed to test whether a program is running as expected according to the flowchart.</p>

						<p>Input is defined by information going into a computer. Inputs could consist of pressing a key, swiping a screen, clicking an object on the screen with a mouse or typing using the keyboard. All of these can be used to increase user interaction within a program. Prompt for input and get input are both defined as user input.</p> <p>Text adventures are computer games that have been created using text instead of graphics. Players use text commands to control characters and influence the environment.</p>
Sequencing Knowledge	<p>Prior knowledge:</p> <p>Year 1</p> <ul style="list-style-type: none"> • Safe logins, • Concept of privacy, • Concept of ownership, • The need to logout. <p>Year 2</p> <ul style="list-style-type: none"> • Share to a display board, • Approval process • Sharing online, • Email simulations • Emotional impact of communications <p>Year 3</p> <ul style="list-style-type: none"> • Good Passwords, and password privacy, • Communication methods, • Shared blog Reliability of information, and spoof websites • appropriate ratings, • emotional effects • Cyberbullying, • Reporting problems <p>Year 4</p> <ul style="list-style-type: none"> • Phishing, • Digital footprint, • Malware and viruses, • Plagiarism, • Screen time <p>Year 5</p> <ul style="list-style-type: none"> • Responsibility to others when sharing, • Sources of support, • SMART rules, • Sharing passwords <p>Image manipulation,</p> <ul style="list-style-type: none"> • Citing sources, • Searching • Reliability 	<p>Prior knowledge:</p> <p>Same prior knowledge as Online Safety.</p> <p>Year 1</p> <p>Technology Outside School (1.6)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose <p>Year 2</p> <p>Effective Searching (2.5)</p> <ul style="list-style-type: none"> • Digital footprint • Privacy <p>Year 3</p> <p>Email (3.5)</p> <ul style="list-style-type: none"> • Evaluating communications • Email safety • Sharing images - safety • Attachments • Email simulations <p>Year 4</p> <p>Effective Searching (4.7)</p> <ul style="list-style-type: none"> • Reliable sources • Search algorithms - impact on what you see <p>Year 5</p> <p>Word Processing (5.8)</p> <ul style="list-style-type: none"> • Use of images • Plagiarism • Citing sources 	<p>Prior knowledge:</p> <p>Year 1</p> <p>Technology Outside School (1.9)</p> <ul style="list-style-type: none"> • Developing ideas about the concept of technology that we are surrounded by and its purpose • Understanding that many devices use computational technology • Use of 2Create a Story tool. <p>Year 2</p> <p>Effective Searching (2.5)</p> <ul style="list-style-type: none"> • Exploration of what the Internet is and how devices allow connections to access functions and the World Wide Web • Searching and sharing <p>Year 3</p> <p>Email (3.5)</p> <ul style="list-style-type: none"> • Using device functions for 2-way communication via the World Wide Web <p>Year 4</p> <p>Effective Searching (4.7)</p> <ul style="list-style-type: none"> • Understanding of the 2- way communication technologies using algorithms that run of the hardware connections <p>Hardware Investigators (4.8)</p> <p>Understanding of the hardware components that make devices function including those for networking</p> <p>AI (4.10)</p> <ul style="list-style-type: none"> • Understand current and future uses of artificial intelligence • Develop creative AI use in music and art 	<p>Prior knowledge:</p> <p>Year 1 (Pictograms)</p> <ul style="list-style-type: none"> • What is data? • Representing data <p>Year 2 (Questioning)</p> <ul style="list-style-type: none"> • Ways to represent data • Pictograms (2Count) • Binary trees <p>(2Question)</p> <p>Year 3</p> <p>Pie charts and Bar graphs</p> <ul style="list-style-type: none"> • Boolean comparison tools (<=>) • Spin tool • Advanced mode • Cell references <p>Year 4</p> <ul style="list-style-type: none"> • Formula wizard • Cell formatting • Timer, random number and spin buttons • Budget planner sheet • Line graphs <p>Year 5 (Databases)</p> <ul style="list-style-type: none"> • Data representation in 2Investigate • Creating and interrogating data • Use of filter, sort and search 	<p>Prior knowledge:</p> <p>Same prior knowledge as coding.</p> <p>Year 1</p> <p>Lego Builders (1.4)</p> <ul style="list-style-type: none"> • Algorithms, • Logical decision making, • Sequencing instructions, • Following instructions <p>Animated Stories (1.6)</p> <ul style="list-style-type: none"> • Use of 2Create a Story tool. <p>Year 2</p> <p>Questioning (2.4)</p> <ul style="list-style-type: none"> • Logical decision processing, • Forward planning to achieve a solution. • Binary decision making. <p>Presenting Ideas (2.8)</p> <ul style="list-style-type: none"> • Presenting a narrative in alternative ways. <p>Year 3</p> <p>Branching databases (3.6)</p> <ul style="list-style-type: none"> • Logical decision processing, • Modelling selection on a binary model. <p>Year 4</p> <p>See Coding</p> <p>Year 5</p> <p>Game Creator (5.5)</p> <ul style="list-style-type: none"> • Game Design planning • Refining and reviewing games <p>Concept Maps (5.7)</p> <ul style="list-style-type: none"> • Use of 2Connect in a variety of ways for different purposes 	<p>Prior knowledge:</p> <p>Year 1- Coding</p> <ul style="list-style-type: none"> • Introducing block coding • Objects and actions • Events (Click event, sound output) • Executing a program • Design view: Planning. <p>Year 2 - Coding</p> <p>Algorithms</p> <ul style="list-style-type: none"> • Collision detection • Timers • Object types • Buttons • Debugging <p>Year 3 - Coding</p> <ul style="list-style-type: none"> • Flowcharts • Timers • Repeat • Code, test, debug process <p>Year 4 - Coding</p> <p>Code, test, debug process</p> <ul style="list-style-type: none"> • IF statements • Repeat Until and IF/ ELSE Statements • Number Variables <p>Year 5 - Coding</p> <p>Efficient Coding</p> <ul style="list-style-type: none"> • Simulating a Physical System • Decomposition and Abstraction • Friction and Functions • Introducing Strings • Text Variables and Concatenation
Vocabulary: Show and Grow words	<p>Digital footprint</p> <p>Password</p> <p>PEGI rating</p> <p>Phishing</p> <p>Screen time</p> <p>Spoof website</p>	<p>Approval</p> <p>Blog post</p> <p>Archive</p> <p>Collaborate</p> <p>Vlog</p> <p>Commenting</p>	<p>Internet</p> <p>World Wide Web</p> <p>Network</p> <p>Local Area Network (LAN)</p> <p>Wide area network (WAN)</p> <p>Network cables</p> <p>Wireless</p>	<p>function</p> <p>Advance mode</p> <p>Alignment</p> <p>Calculate</p> <p>Copy and paste</p> <p>Cells</p> <p>Cell reference</p> <p>Charts</p> <p>Count tool</p>	<p>Text-based Adventure</p> <p>Debugging</p> <p>Sprite</p> <p>Selection</p> <p>Function</p> <p>Flow of control</p> <p>Step through</p>	<p>Action</p> <p>Alert</p> <p>Algorithm</p> <p>Background</p> <p>Button</p> <p>Called</p> <p>Debug</p> <p>Command</p> <p>Co-ordinates</p>

				<div>Dice Equals tool Formula Formula wizard Random tool Range Rows Style Sum Text wrapping Workbook Move cell tool Spreadsheet Timer Spin tool</div>		<div>Decomposition Developer Event Flowchart Function Get input If/else Number variable Nesting Object Predict Prompt properties Repeat Run Scene Selection Simulation String Tab Timer User input Variable</div>
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