

St Mark's All-Through Curriculum Map for Computing (KS1 – 2)

	Autumn	Spring	Summer
EYFS	<p style="text-align: center;"><u>Year R Computing Foundations</u></p> <p style="text-align: center;">-Talk about ICT apparatus, what it does, what they can do with it and how to use it safely</p> <p style="text-align: center;">-Use ICT to interact with age-appropriate software, e.g. teach the children how clicking on different icons causes things to happen in phonics/maths games computer programmes. Complete a simple program or game.</p> <p style="text-align: center;">-Support children to co-ordinate actions to use technology through play, such as taking a photograph/video or dialling a phone number. Encourage them to speculate on why things happen and how they work.</p> <p style="text-align: center;">-Play with a range of programmable toys such as BeeBots</p>		
Year 1			
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).			
<p style="text-align: center;">Digital Literacy</p> <p style="text-align: center;">-Use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.</p>			
Year 1	Autumn 1	Spring 1	Summer 1
	<p>1.1 <u>Autumn 2 – Technology Around Us</u></p> <p style="color: red;">Introduction to why rules are needed when using</p>	<p>1.2 <u>Spring 2: Moving a Robot</u></p> <p style="color: red;">Review technology safety</p>	<p>1.3 <u>Summer 2: Creating Media – Digital</u></p>

<p>Year 1</p>	<p>technology and how to use it safely and respectfully. Children know the rules, to keep personal information safe, and to report to an adult if they are worried about content or contact on the internet or other online technologies.</p> <p>Information Technology & Digital Literacy</p> <p>Concept Introduction to the concept of technology, identify examples of where it is and how it can help us.</p> <p>Children to recognise that a computer is an example of technology and can be used in different ways.</p> <p>Knowledge and Skills</p> <ul style="list-style-type: none"> - Be able to identify the different parts of a computer (screen, mouse, keyboard). - To use a mouse in different ways (open a programme, Click and Drag) - To use a keyboard to type - To use a keyboard to edit text - To save work and be able to open a file. <p>Software: https://ncce.io/drag http://paintz.app</p> <p>Future Learning: 1.3, 2.1</p>	<p style="text-align: center;">Computer Science</p> <p>Concept To understand that an outcome can be linked to a button press and that a program is a set of commands that a computer can run.</p> <p>Knowledge and Skills</p> <p>Children are introduced to the term 'algorithm' but start to understand this in Year 1 as a set of instructions that are used to solve a problem or achieve something.</p> <ul style="list-style-type: none"> - To explain what a given command (instruction) will do - To be able to give and follow instructions - Plan and run a simple programme using a floor robot - Build a sequence of commands in steps - De-bug: be able to fix a problem with the sequence. <p>Software: Beebot Floor Robots</p> <p>Future Learning: 2.3, 3.1, 4.2, 5.2, 5.4, 6.2</p>	<p style="text-align: center;">Painting Review technology safety</p> <p style="text-align: center;">Information Technology</p> <p>Concept To recognise that computers can be used to create art and explain what different freehand tools do. Children will learn to choose tools to suit their need and compare painting using a computer with painting using brushes.</p> <p>Knowledge and Skills</p> <p>Review from Unit 1:</p> <ul style="list-style-type: none"> - Be able to identify the different parts of a computer (screen, mouse, keyboard). - To use a mouse in different ways (open a programme, Click and Drag) - To save work and be able to open a file. - Make marks on a screen and explain which tools they used. - Use the shape & line tool to re-create the work of an artist - Change colour and brush sizes <p>Software: Microsoft Paint or the online app Paintz (paintz.app), or another appropriate digital painting program</p> <p>Future Learning: 2.2, 3.3, 4.3, 5.3, 6.3</p>
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Year 2			
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).			
Digital Literacy			
-Use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.			
	Autumn Year 2	Spring Year 2	Summer Year 2
Year 2			<p>Summer 1 – Geography (cross-curricular application)</p> <p>Children begin to understand the use of technology for maps and mapping. They use a named search using Google/Digimaps to retrieve maps and live scenes from continents around the world.</p> <p>Children apply their mouse and keyboard skills to a mapping context. They use the mouse to explore scale and perspective of a range of different maps</p>
	<p><u>2.1 Autumn 2: Data and Information: Pictograms</u> Review technology safety Information Technology</p> <p>Concept</p> <p>Knowledge and Skills</p> <p>Review from Year 1:</p> <ul style="list-style-type: none"> - Logging on. - Be able to identify the different parts of a computer (screen, mouse, keyboard). - To use a mouse in different ways (open a programme, Click and Drag) - To save work and be able to open a file. - Enter data into a computer 	<p><u>2.2 Spring 2: Creating Media – Digital Writing</u> Review technology safety Information Technology</p> <p>Concept</p> <p>Children recognise that text that is entered into a computer can be edited and changed. Children start to consider the impact of the changes they are making to achieve a desired effect.</p> <p>Knowledge and Skills</p> <p>Review from Year 1:</p> <ul style="list-style-type: none"> - Logging on. - To use a keyboard to type - To use a keyboard to edit text - To use a mouse in different ways (open a programme, 	<p><u>2.3: Summer 2: Programming Animations</u> Review technology safety Computer Science</p> <p>Concept</p> <p>To understand that an outcome can be linked to a button press and that a program is a set of commands that a computer can run. We call this an 'algorithm'.</p> <p>Knowledge and Skills</p> <p>Children are now expected to know and use the term 'algorithm' in computing.</p>

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	<ul style="list-style-type: none"> - Use a computer to view data - Recognise that people, animals and objects can be described by 'attributes' (an attribute includes its name and a value. For example, a ball will have a colour, which might be red. 'Colour' is the attribute name, and 'red' is the attribute value. - Use a computer to answer and construct single attribute and comparison questions <p>Software: j2e pictogram</p> <p>Future Learning: 3.2, 5.1</p>	<p style="text-align: center;">Click and Drag)</p> <ul style="list-style-type: none"> - To save work and be able to open a file. - Use letter, number and space keys to enter text into a computer - Remove text using the backspace - Use punctuation and special characters - Select and change the appearance of text (bold, italic, underline, font) <p>Software: Google Docs</p> <p>Future Learning: 3.3, 4.3, 5.3, 6.3, 7.6</p>	<p>They learn that an 'input' is data that is entered into or received by a computer or electronic device.</p> <p>They learn that 'output' is any information processed by and sent out from a computer or electronic device.</p> <p>They know the term 'debug' as fixing a problem.</p> <p>Review from Year 1:</p> <ul style="list-style-type: none"> - To explain what a given command (instruction) will do - To be able to give and follow instructions - De-bug: be able to fix a problem with the sequence. - Choose a command for a given purpose (find and use commands to move a sprite). - Show that a series of commands can be joined together (use more than one block by joining them together, use a Start block, run the program) - Identify the effect of changing a value - Design and create an algorithm for given purpose. - Test and debug the programme created. <p>Software: Scratch Jr.</p> <p>Future Learning: 3.1, 4.2, 5.1, 5.4, 6.2, 7.4, 7.5</p>
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Year 3			
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).			
Digital Literacy			
- Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.			
<p>Year 3</p>	<p><u>3.1 Autumn 1: Programming A – Sequencing</u> Music <i>Review technology safety</i> Computer Science</p> <p>Concept</p> <p>-Programs start because of an input and a program consists of sequences of commands (algorithms). The sequence of a program is a process and the order of commands can affect a program's output.</p> <p>Knowledge and Skills</p> <p>Review from Year 2:</p> <p>Terminology: <i>They review that:</i> An 'input' is data that is entered into or received by a computer or electronic device.</p> <p>An 'output' is any information processed by and sent out from a computer or electronic device.</p> <p>'Debugging' is fixing a problem.</p> <ul style="list-style-type: none"> - Choose a command for a given purpose (find and use commands to move a sprite). - Show that a series of commands can be joined together (use more than one block by joining them together, use a Start block, run the program) - Identify the effect of changing a value 	<p><u>3.2 Spring 1: Data and Information: Branching</u> Databases <i>Review technology safety</i> Information Technology</p> <p>Knowledge and Skills</p> <p>Review from Year 2:</p> <ul style="list-style-type: none"> - Recognise that people, animals and objects can be described by 'attributes' (an attribute includes its name and a value. For example, a ball will have a colour, which might be red. 'Colour' is the attribute name, and 'red' is the attribute value. - The term 'database' means 'a collection of organised data that is stored on a computer'. Databases allow people to search and sort large quantities of data to find information. - Create questions with yes/no answers (create two groups of objects separated by one attribute) - Create a group of objects within an existing group - Create a branching database and test it to see if it works. - Explain why it is helpful for branching databases to be well structured. - Create and test their own identification tool. <p>Software: https://www.i2e.com/jit5#branch</p> <p>Future Learning: 5.1, 7.2</p>	<p><u>3.3 Summer 1 – Creating Media: Desktop</u> Publishing <i>Review technology safety</i> Information Technology</p> <p>Concept</p> <p>Recognise how text and images can be used together to convey information. Consider how different layouts can suit different purposes and recognise how different styles and effects are used in a DTP application.</p> <p>Knowledge and Skills</p> <p>Review from Year 2:</p> <ul style="list-style-type: none"> - To save work and be able to open a file. - Use letter, number and space keys to enter text into a computer - Remove text using the backspace - Use punctuation and special characters - Select and change the appearance of text (bold, italic, underline, font) - know landscape and portrait as two different page orientations - Organise text and image placeholders in a page layout - To edit text in a placeholder - Move, resize and rotate images - choose fonts and apply effects to text <p>Software: Adobe Spark. To use Spark accounts are needed for learners (guide provided) Future Learning: 4.3, 5.3, 6.3, 7.6</p>

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	<ul style="list-style-type: none"> - Design and create an algorithm for given purpose. - Test and debug the programme created. - Identify the objects in scratch and that objects have attributes. - Build a sequence of commands - Combine sound commands in a program - Order commands in a program - Create a sequence of commands to produce a given outcome - <p>Software: Scratch</p> <p>Future Learning: 4.2, 5.2, 5.4, 6.2, 7.4, 7.5</p>		
		<p>Cross-Curricular Application:</p> <p>Spring 2 - Science</p> <p>Scientific enquiry (using secondary sources): enquiry research into how requirements vary from plant to plant.</p> <p>Children carry out simple searches to retrieve digital content, understanding that to do this, they are connecting to the internet.</p>	

Year 4			
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).			
Digital Literacy			
- Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.			
Year 4	<p>Autumn 1 – Science (Cross-Curricular Application):</p> <p>Science enquiry (using secondary sources): researching the diets and types of teeth of herbivores, omnivores and carnivores.</p> <p>Children understand the function, features and layout of a search engine.</p> <p>They can appraise selected webpages for credibility and information at a basic level.</p> <p>Children carry out simple searches to retrieve digital content, while considering the features and layout of Google as a search engine. They start to consider credibility of certain websites compared to others.</p>	<p style="text-align: center;">4.2 Spring 1 – Programming A: Repetition of Shapes Review technology safety Computer Science</p> <p>Knowledge and Skills</p> <p>Review from Years 1-3:</p> <p>Terminology: They review that: An 'input' is data that is entered into or received by a computer or electronic device.</p> <p>An 'output' is any information processed by and sent out from a computer or electronic device.</p> <p>'Debugging' is fixing a problem.</p> <ul style="list-style-type: none"> - An algorithm is a sequence of instructions used to complete a task. - Know what to repeat means and identify everyday tasks that include repetition as part of a sequence such as brushing teeth. - Know that we can use a loop command in a program to repeat instructions. - Identify loops within a program - An indefinite loop will run until the program stops - A count-controlled loop is programmed to stop after a 	<p style="text-align: center;">4.3 Summer 1 – Creating Media: Presentations</p> <p>Review from Year 1-3:</p> <ul style="list-style-type: none"> - To save work and be able to open a file. - Select and change the appearance of text (bold, italic, underline, font) - Organise text and image placeholders in a page layout - To edit text in a placeholder - Move, resize and rotate images, choose fonts and apply effects to text - <p>Review safe searching skills from /autumn 2:</p> <ul style="list-style-type: none"> - Evaluate the reliability of content and the consequences of unreliable content. - Explain the benefits and limitations of the world wide web. - Use multiple slides within a presentation - Use a theme within a presentation - Add animations to slides - Understand and use transitions <p>Software: Google Slides</p> <p>Future Learning: 5.3, 6.3, 7.6</p>

		<p>specific amount of times. - Plan a program that includes appropriate loops to produce a given outcome.</p> <p>Software: Logo</p> <p>Future Learning: 5.2, 5.4, 6.2, 7.4, 7.5</p>	
	<p><u>4.1 Autumn 2 – Systems and Networks</u> Review technology safety</p> <p>Information Technology</p> <p>Review from Year 3: Children carry out simple searches to retrieve digital content, understanding that to do this, they are connecting to the internet.</p> <p>Knowledge and Skills</p> <ul style="list-style-type: none"> - Know that the internet is a network of networks. - Know that the world wide web is part of the internet and contains websites and web pages. - Evaluate the reliability of content and the consequences of unreliable content. - Explain the benefits and limitations of the world wide web. <p>Software: Chrome Music Lab (1 lesson)</p> <p>Future Learning: 6.3, 7.1, 7.3</p> <p>Autumn 2 – Geography (Cross-Curricular Application):</p> <p>How can we use networks to spread knowledge about the issue of climate change?</p> <p>Children create a climate change blog for an intended audience, to become a content creator on the internet (2Blog).</p>		

Year 5			
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).			
Digital Literacy			
- Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.			
Year 5	<p>5.1: Autumn 1 – Data and Information Flat File Databases</p> <p style="text-align: center;">Review technology safety Information Technology</p> <p>Concept A computer program can be used to organise data and that tools can be used to select data to answer questions. Computer programs can be used to compare data visually and we present information to communicate a message.</p> <p>Knowledge and Skills</p> <p>Review from Years 3:</p> <ul style="list-style-type: none"> - Recognise that people, animals and objects can be described by 'attributes' (an attribute includes its name and a value. For example, a ball will have a colour, which might be red. 'Colour' is the attribute name, and 'red' is the attribute value. - The term 'database' means 'a collection of organised data that is stored on a computer'. Databases allow people to search and sort large quantities of data to find information. - A database is made up of 'records', and each record contains 'fields' of data. A field is one specific piece of data in a database record. For example, 	<p>5.3: Spring 1: Creating Media – Information Posters</p> <p>Knowledge and Skills</p> <ul style="list-style-type: none"> - Select and change the appearance of text (bold, italic, underline, font) - Organise text and image placeholders in a page layout - Move, resize and rotate images, choose fonts and apply effects to text - Use a theme within a presentation - To edit text in a placeholder - Move, resize and rotate images - Choose fonts and apply effects to text - <p>Review safe searching skills from Year 4:</p> <ul style="list-style-type: none"> - Evaluate the reliability of content and the consequences of unreliable content. - Explain the benefits and limitations of the world wide web. - Format a specific area of text (highlight, move & edit according to task) - Format pictures within a document (text wrapping, crop, resize) - Insert and format tables. <p>Software: Google Slides</p> <p>Future Learning: 6.3, 7.6</p>	

	<p>a record all about a country could have fields such as 'country name' and 'country population'.</p> <ul style="list-style-type: none"> - The value within the record is the 'answer' to each field, e.g. Mexico is the value in the 'country name' field and '126.2 million' is the value in the 'country population' field. - Choose which attribute and value to search by to answer a given question. - Choose which attribute to sort data by to answer a given question. - Select an appropriate graph to visually compare data. - Choose suitable ways to present information to other people. <p>Software: J2Data sample databases.</p> <p>Future Learning: 7.2</p>		
	<p align="center"><u>5.2 Autumn 2 – Programming Physical Systems Computer Science</u></p> <p>Cross-curricular application: DT (Mechanisms) Knowledge and Skills Review from Years 1-3: Terminology: They review that: An 'input' is data that is entered into or received by a computer or electronic device.</p> <p>An 'output' is any information processed by and sent out from a computer or electronic device.</p> <p>'Debugging' is fixing a problem.</p> <ul style="list-style-type: none"> - An algorithm is a sequence of instructions used to complete a task. - Know what to repeat means and identify everyday tasks that include repetition as part of a sequence such as brushing teeth. 		<p align="center"><u>5.4 Summer 2 – Programming: Selection in quizzes Review technology safety Computer Science</u></p> <p>Concept</p> <p>A 'condition' can only be true or false. A count-controlled loop contains a condition. A condition-controlled loop will stop when a condition is met. Understand that selection can be used to branch the flow of a program. Learners need to understand the importance of instruction order in if...then...else statements.</p> <p>Knowledge and Skills</p> <p>Terminology: They review that: An 'input' is data that is entered into or received by a computer or electronic device. An 'output' is any information processed by and sent out from a computer or electronic device.</p> <p>'Debugging' is fixing a problem.</p>

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	<ul style="list-style-type: none"> - Know that we can use a loop command in a program to repeat instructions. - Identify loops within a program - An indefinite loop will run until the program stops - A count-controlled loop is programmed to stop after a specific amount of times. <ul style="list-style-type: none"> - Apply knowledge of programming (sequence, selection and repetition) to use Flowol to program and control physical fairground ride mechanisms. <p>Future Learning: 6.2, 7.4, 7.5</p>		<ul style="list-style-type: none"> - An algorithm is a sequence of instructions used to complete a task. - Know what to repeat means and identify everyday tasks that include repetition as part of a sequence such as brushing teeth. - Know that we can use a loop command in a program to repeat instructions. - Identify loops within a program - An indefinite loop will run until the program stops - A count-controlled loop is programmed to stop after a specific amount of times. <ul style="list-style-type: none"> -a 'condition' can only be True or False. -Choose a condition to use in a program. -Create a condition-controlled loop (and understand the loop will stop when the condition is met). -Use a condition in an 'If...Then..' statement to start an action. -use selection to switch program flow. -Use 'If...Then...Else' to switch program flow in one of two ways. <p>Software: Scratch</p> <p>Future Learning: 6.2, 7.4, 7.5</p>
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Year 6		
Curriculum Content (Core Knowledge and Vocabulary outlined on the Knowledge Organiser).		
Digital Literacy		
<p>- Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Taught throughout all units of computing, the shared school charter, internet safety day and progressively through PSHE lessons.</p>		
Year 6		<p>6.2 Spring 1: Programming Variables in a Game Review technology safety Computer Science</p> <p>Knowledge and Skills Review: Terminology: They review that: An 'input' is data that is entered into or received by a computer or electronic device. An 'output' is any information processed by and sent out from a computer or electronic device. 'Debugging' is fixing a problem.</p> <ul style="list-style-type: none"> - An algorithm is a sequence of instructions used to complete a task. - Know what to repeat means and identify everyday tasks that include repetition as part of a sequence such as brushing teeth. - Know that we can use a loop command in a program to repeat instructions. - Identify loops within a program - An indefinite loop will run until the program stops - A count-controlled loop is programmed to stop after a specific amount of times. - Selection: <ul style="list-style-type: none"> -a 'condition' can only be True or False. -Conditions can be used in a program. -Condition-controlled loops (the loop will stop when the condition is met). -Use a condition in an 'If...Then..' statement to start

		<p>an action.</p> <ul style="list-style-type: none"> -selection can be used to switch program flow. -Define a variable as something that is changeable (link to science enquiries) -A variable in a program has a name and value -Variables hold numbers and letters and can be changed. -Be able to explain why a variable is used in a program and how to improve a game by changing them. -Design, create and run a game that makes use of variables. <p>Software: Scratch Future Learning: 7.4, 7.5</p>	
	<p><u>6.1 Autumn 2: 3D computer aided design (cross curricular application – Design Technology)</u></p> <p>Knowledge and Skills:</p> <ul style="list-style-type: none"> -CAD (computer aided design) is the use of a computer itself to be able to design a product. Designers can create a series of designs to better communicate their ideas. -Learn how to view, move, rotate, size up, group and align within Tinker cad. Use these tools to develop initial designs using 3D software in the design process. -Develop and review designs against the design brief. -Render the design adding tone and colour to make it look more realistic. <p>Software: Tinker Cad Autumn 1 Cross-Curricular Application: Geography</p> <p>Geography (Gaining understanding of the Amazon as a place): Internet searches and use of Digimaps. Learners develop their digital mapping skills to use a range of viewpoints up to satellite view to gauge an idea of The Amazon as a place. Learners are also able to use a scale bar on all maps to illustrate a story or an issue.</p>	<p><u>6.3 Spring 2: Creating Media: Web Page Creation</u></p> <p>Review search engines from year 4 Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.</p> <p>Skills and Knowledge</p> <ul style="list-style-type: none"> - Select and change the appearance of text (bold, italic, underline, font) - Organise text and image placeholders in a page layout - Use a theme within a presentation - To edit text in a placeholder - Move, resize and rotate images - Choose fonts and apply effects to text - Format a specific area of text (highlight, move & edit according to task) - Embed hyperlinks and videos within a webpage - To understand and use the terms 'fair use' and 'copyright'. - To be able to explain what a navigation path is. - To add content to a webpage. <p>Software: Google Sites Future Learning: 7.6</p>	