Computing Progression of Disciplinary Knowledge

- Programming and algorithms
- Information and communication technology
- Digital literacy
- Technological design

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Programming and algorithms	**Units to be completed**		Physical Beebots Daisy Dino	Scratch Junior Beebots App	Repetition in games- Scratch Events and actions- Scratch Lego WEDO	Repetition in games- Scratch Events and actions- Scratch Lego WEDO	Variables in games- Scratch Sensing- Microbits	Variables in games- Scratch Sensing- Microbits
	National Curriculums links		• 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	• design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts • use sequence in programs • 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; solve problems by decomposing them into smaller parts • use sequence in programs • 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; solve problems by decomposing them into smaller parts • use sequence in programs • 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; solve problems by decomposing them into smaller parts • use sequence in programs • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
	Key outcomes		**Physical Beebots** • Children will input simple instructions to move the Beebot • Children will input one command at a time • Children will use simple commands to reach a goal (supported by Beebot maps) **Daisy Dino** • Children will input more complex instructions to create algorithms • Children will use algorithms to solve problems (in app) • Children will use algorithms to create	**Beebots App** • Children will input more complex instructions to move the Beebot • Children will begin to combine commands to reach a destination (supported by Beebot mats and iPad apps) • Children will understand bugs (where things go wrong) and reset the Beebot to have another go (debug) • Children will use debugging to move across increasingly complex maps **Scratch Junior** • Children will input commands to build	**Scratch Units** **Repetition in games** **Events and Actions** • Children will move into using the Scratch online interface and will understand the different areas (e.g. performance, coding, sprite creation) • Children continue to use conditional commands to code and run games • Children build on Y2 knowledge of "when sprites touch, then…" to develop a more complex game • Children design characters and understand the use of "costumes" alongside a conditional command	**Scratch Units** **Repetition in games** **Events and Actions** • In addition to the key outcomes observed in year 3, Children will: • Use repeat and forever commands to reduce coding blocks and to enable game to run smoothly • Begin to move into increasingly abstract coding (with numbers to determine placements and how much something moves / changes) • Use trigger blocks to link a series of actions • Be introduced to simple variables (scoring)	**Variables in games- Scratch** • Children will define a 'variable' as something that is changeable • Children will explain why a variable is used in a program • Children will choose how to improve a game by using variables • Children will design a project that builds on a given example • Children will use their design to create a project • Children will evaluate their project and identify how their game could be improved	**Variables in games- Scratch** In addition to the key outcomes observed in year 5, children will: • Identify a range of examples of variables in games. • Suggest a range of ways to improve a game using variables and identify the benefits and drawbacks of each improvement. • Provide a range of design ideas building on a given example and identify the benefits and drawbacks of each design to inform their project. **Sensing- Microbits**

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			animations that match stories • Children will use debugging to create clear and precise commands	algorithms, building on their work of command blocks from Y1 • Children will begin to use and understand conditional commands with yellow triggering blocks (e.g. If I tap my character, he will move. If my character hits another character, the game will restart)	trigger to change the look of the sprite • **Lego Wedo** • **TBC**	• **Lego Wedo** • **TBC**	**Sensing- Mircobits** • Children will create a program to run on a controllable device • Children will explain that selection can control the flow of a program • Children will update a variable with a user input • Children will use a conditional statement to compare a variable to a value • Children will design a project that uses inputs and outputs on a controllable device • Children will develop a program to use inputs and outputs on a controllable device	• In addition to the key outcomes observed in year 5, children will: • Reflect on and evaluate their project to consider if it meets the project brief and suggest possible improvements
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Information and communication technology	**Units to be completed**		Google Docs Google Slides	Google Docs Google Slides	Google Docs Google Slides	Google Docs Google Slides	Google Sheets Web Page Creation	Google Sheets Web Page Creation
	National Curriculums links		• use technology purposefully to create, organise, store, manipulate and retrieve digital content	• use technology purposefully to create, organise, store, manipulate and retrieve digital content	• select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information	• select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information	• select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information	• select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information
	Key outcomes		• Children will begin to learn typing skills and understand that typing can be a way to record information	• Children will build on their Y1 knowledge of typing and understand that typing is a way to store information • Children will begin to format their work using different fonts, etc • Children will create Google Slides.	• Children will build on their Y1 knowledge of typing to become more fluent • Children will build on their Y2 knowledge of presentations to create a Google Slide presentation • Children will begin to understand the benefits of	• Children will build on their Y1 knowledge to become fluent in typing • Children will build on their Y3 knowledge of Google programmes and their benefits • Children will build on their Y2 and Y3 knowledge of formatting to ensure their	• Children will build on their Y3 and 4 knowledge of online services and their benefits • Children will recognise transferable skills between programmes • Children will understand the purpose of spreadsheet software	In addition to the key outcomes observed in year 5, children will: • understand how presentation, word processing and spreadsheet software can be used together to share information and fit a brief • Children should be fluent in sharing their work with their teacher and peers

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				● Children should understand that presentations are a valid way to share information about any topic	Google Cloud programmes vs Microsoft software ● Children will begin to understand the transferable skills between software types ● Children should use presentations regularly to share information that is important to them	work is clear for their reader ● Children will recognise the transferable skills between programmes ● Children should use Google Docs to regularly type up writing ● Children should share their work with their teacher and begin to understand "Sharing" on an online platform	● Children will begin to understand some of the features of Google Sheets and spreadsheet software ● Children will use Google Sheets to present data following a purpose ● Children should share their work with their teacher and peers	
Digital Literacy	**Units to be completed**		Technology around us	Technology around us	The internet	The internet	Sharing Information	Sharing information
	National Curriculums links		● Recognise common uses of information technology beyond school. ● Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. ● 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. ● 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.	● Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration ● Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ● Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information	● Understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration ● Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ● Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information	● 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 safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report	● 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 safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report

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					● Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	● Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	concerns about content and contact	concerns about content and contact
	Key outcomes		● To identify technology. ● To identify a computer and its main parts. ● To use a mouse in different ways. ● To use a keyboard to type on a computer ● To use a keyboard to edit text. ● To create rules for using technology responsibly.	● To identify technology ● To identify a computer and its main parts. ● To use a mouse in different ways. ● To use a keyboard to type on a computer ● To use a keyboard to edit text. ● To create rules for using technology responsibly. ● To used technology purposefully to organise digital content. ● To understand the difference between a digital and non-digital device .	● To describe how networks physically connect to other networks. ● To recognise how networked devices make up the internet. ● To outline how websites can be shared via the World Wide Web (WWW). ● To describe how content can be added and accessed on the World Wide Web (WWW). ● To recognise how the content of the WWW is created by people. ● To evaluate the consequences of unreliable content.	In addition to the key outcomes for year 3 students: ● To describe some of the risks of sharing too much information online. ● To understand the opportunities computer networks offer for communication. ● To identify a range of ways to report concerns about content. ● To recognise acceptable/unacceptable behaviour when using the WWW.	To build on from learning in years 3 and 4 (the internet): ● To explain the importance of internet addresses. ● To recognise how data is transferred across the internet. ● To explain how sharing information online can help people to work together. ● To evaluate different ways of working together online. ● To recognise how we communicate using technology. ● To evaluate different methods of online communication.	●
	Units to be completed		Information Technology	Information Technology				
	National Curriculums links		● Recognise common uses of information technology beyond school. ● Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. ● Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns	● Recognise common uses of information technology beyond school. ● Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. ● Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns				

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			about content or contact on the internet or other online technologies.	about content or contact on the internet or other online technologies.				
	Key outcomes		● To recognise the uses and features of information technology. ● To identify the uses of information technology in the school. ● To identify information technology beyond school. ● To explain how information technology helps us. ● To explain how to use information technology safely. ● To recognise that choices are made when using information technology.	In addition to the key outcomes for year 1 students: ● To use technology respectfully. ● To identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.				
Technological design	**Units to be completed**						Tinkercad	Tinkercad
	National Curriculums links						● select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information	● select, use and combine a variety of software (including internet services) on a range of digital; presenting data and information
	Key outcomes						● Children will continue to explore the benefits of technological art ● Children will understand the necessities of technological planning and how it can support / improve a project (e.g. precise, easy access to references, able to “undo” easily) ● Children will create simple technological designs of products (following briefs)	● Children will continue to explore the benefits of technological art ● Children will understand the necessities of technological planning and how it can support / improve a project (e.g. precise, easy access to references, able to “undo” easily) ● Children will create simple technological designs of products (following briefs)

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							• Children will apply this learning to their DandT projects in the future	• Children will apply this learning to their DandT projects in the future • Building on from applying their learning to their DT project, children will include their use of Tinkercad within the evaluation process to reflect on what worked well and what would make their project even better.