

Computing Curriculum





At St Mary's Bryanston Square CE Primary School we aim to deliver a high-quality computing education that enables pupils to use computational thinking and creativity to understand and change the world. We want pupils to have the technological skills they need to access any career opportunity in the future. We teach computing through three concepts; computer science, information technology and digital literacy.

3 concepts of computing:

Computer science

In computer science pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming.

Information technology

Information technology is used to create programs, systems and a range of content.

Digital literacy

Digital literacy ensure that pupils are able to use, and express themselves and develop their ideas through, information and communication technology- at a level suitable for the future workplace and as active participants in a digital world.

E-safety:

E-safety is an integral part of our curriculum at St Mary's Bryanston Square CE Primary School. In each year group, computing teaching begins in autumn term with an e-safety topic. Throughout the year, e-safety is then revisited each time a digital literacy unit is taught.

We aim to develop:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation.
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- Are responsible, competent, confident and creative users of information and communication technology.

To read the rest of our policy on computing – please see our school website: <https://www.stmarys.bryanston.net/>

The 3BM scheme of work is used as a good practice guide for our curriculum. It aligns with our computing policy and the objectives laid out in the National Curriculum. In Nursery, the curriculum is guided by the Early Years Foundation Stage (EYFS) Framework.

	Long Term Curriculum Plan 2022-23					
Computing	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	ELG: Children at the expected level of development will: ➤ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function ➤ Show an age related level of interest in technological resources ➤ Make observations of the world including that of technology					
Year 1	Smartie the Penguin (DL) CyberWalk (IT)	Robot Words (IT) I Can Sort Objects (IT)	What is an algorithm? (CS) Who painted this? (IT)	How Does My Garden Grow? (DL) Journeys- Beebot Garden Walk (CS)	I Can Code (CS) Sharing My Iceberg Work (DL)	Giving Instructions...to make toast (CS) Design a Plate/Face (IT)
Year 2	Digiducks dilemma (DL) I Can Debug (CS)	Follow that Footprint (DL) How does that grow? (IT)	Mini-Beasties (IT) Finding out about Mary Seacole (DL)	How do you get to School Safely (IT) How does that work? (CS)	Say no to graffiti (IT) Do you like my blog? (DL/IT)	Let's email Grandma (CS) Programming A – Robot algorithms (CS)
Year 3	Safe Surfing with Dongle (DL) Internet Scenario card activity (DL) Would I lie to You? (DL)	I can make an animation (IT) Journey of an email (CS)	Do you like my presentation? (DL/IT) Words, Words, Words (CS)	I can use block coding (CS) Creating a tessellation (IT)	See and hear my mix (IT) Exploring how things work (CS)	Finding out about me (IT) Can your robot make shapes? (CS)
Year 4	Internet search and presentation (DL/IT) Internet Scenario card-Social Networking(DL)	I Can edit and record sounds (IT) I can use block coding (CS)	I can create a game using j2code (CS)	Let's email (CS) Dancing with Scratch (CS)	Programming A – Repetition in shapes (CS)	My exciting world landmarks (IT) What's a spreadsheet? (IT)
Year 5	What is the internet? (CS) Design a Poster (IT) Internet scenario card activity- gaming (DL)	Game creation with scratch (CS) Stop! Check! (DL)	Let's design in 3D (IT) Simply Delicious (IT)	Can you finish my story? (DL/IT) Building a sustainable house (IT)	Programming A – Selection in physical computing (CS)	I can make an animation (IT)
Year 6	How fake is that? (DL) How can we trust the internet? (DL)	Simulating environments (CS) My exciting world landmarks (IT)	Let's Design and Combine in 3D (IT) Searching, Searching (CS)	Have fun with Scratch (CS)	What's wrong here? (CS)	Programming A – Variables in games (CS)

Progression of skills and knowledge- provided by Strictly Education 3BM

Progression of skills and knowledge

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Year	Information Technology	Computer Science	Digital Literacy
Y1	• Can use a mouse, finger etc. to select & move items on the screen, assembling or matching objects • Can take a digital picture or video clip, or record a sound, as part of a task. • Can use some software to create / assemble digital content for clear purpose, (could be text, images, animation, graph, sound, etc.) • Can make straight-forward edits of their digital work (text, image, sound etc.,) using simple editing tools, to both correct or improve it • Can access a resource and then find answers to straight-forward questions • Can recognise and talk about some common uses of IT in the world around them • Can save and retrieve some work (and print if appropriate to task).	• Can give simple instructions to control a device, like a 'floor' robot, or on-screen object • Can use trial and error to produce an accurate set of simple instructions, to control a floor 'robot' or on-screen object • Can name some digital devices that need precise instructions (algorithms) to work / be controlled • Understands that software may represent a fantasy situation and can make sensible (logical) decisions/choices when 'playing' a straight-forward 'game' • Understands some basic computing terms and concepts, such as ... algorithm, program, sequence, etc	• Knows about the Internet and beginning to understand some key, age appropriate, safety 'rules' • Can share some information with others, (such as via school network, in school MLE, via a 'closed' blog) • Can find some straight-forward information from a 'safe', selected online resource
Y2	• Can use some software to create / assemble digital content for clear purpose, (could be text, images, animation, graph, sound, etc.) • Can make straight-forward edits of their digital work (text, image, sound etc.,) using simple editing tools, to both correct or improve it. • Can navigate their way within some straight-forward digital content, such as selected history content, to find some specific information • Can create and amend a (multi-media) resource for a clear purpose, starting to show a sense of the 'audience' • Can create & store some data, (simple data file), and then find answers to straight-forward questions • Can recognise and talk about some common uses of IT in the world around them • Can save and retrieve work (and print if appropriate to task)	• Can give a set of simple instructions to program (control) a device, like a 'floor' robot, or on-screen object • Can use trial and error to produce an accurate set of 'instructions' to control a floor 'robot' or on-screen object; refine (de-bug) and improve / make changes • Can talk about some electronic devices and understands that they need precise instructions (algorithms) to work / be programmed (controlled). • Demonstrates logical 'trial and error' when using a computer simulation or game, and predicts the consequences of decisions/choices made • Understands some basic computing terms and concepts, such as: (school) network, algorithm, program, debug, editing, website, etc.	• Can talk about key online safety 'rules' and knows where to go / report if a problem • Can create and share some information online, (such as in school MLE, 'closed' email system or blog), understanding need to be respectful and safe. • Can find some straight-forward information from (selected) website resource(s) and knows not all websites 'good to use'.
Year	Information Technology	Computer Science	Digital Literacy

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Y3	• Can use some software to create / assemble digital content for clear purpose, (could be text, images, animation, graph, sound, etc.) • Can make straight-forward edits of their digital work (text, image, sound etc.,) using simple editing tools, to both correct and improve it. • Can create and amend a (multi-media) resource that shows a sense of 'audience'. • Can navigate their way within some straight-forward digital content, such as selected history content, to find some specific information. • Can create & store some data, (simple data file), and then find answers to straight-forward questions. • Can recognise and talk about some common uses of ICT in the world around them. • Can save and retrieve work from electronic folders (and print if appropriate to task).	• Demonstrates logical 'trial and error' when using a computer simulation, 'model' or game, and predicts some consequences of decisions/choices made. • Can produce an accurate set of simple instructions (code), to program (control) an on-screen object (or floor 'robot'), using trial and error to refine (de-bug). • Can also talk about how the sequence of events in some simple instructions (algorithms) or code are 'working'. • Can talk about some digital devices beyond school, that need precise instructions (algorithms) to work / be programmed (controlled). • Knows some relevant computing terms such as computer network, Internet, algorithm, program, World Wide Web, website, etc.	• Can talk about key online safety 'rules' and knows where to go / report if a problem. • Can create and share some information online (such as in school MLE, email/blog), understanding need to be respectful and safe. • Can find some straight-forward information from (selected) website resource(s) and knows not all websites 'good to use'.
Y4	• Can use software to create and combine content (be it text, pictures / images, graphs, animation, podcast etc.,) for meaningful purpose(s). • Can also edit and amend their digital work (text, image, sound etc.,) using simple editing tools, to both correct and improve it. • Can create and amend a multi-media resource that shows a sense of 'audience'. • Can navigate their way within range of (selected) online content, to find specific information. • Can include some information / content from an online resource within a 'presentation'. • Can use a data file to find answers to straight-forward questions, (such as through data logging or a survey or a prepared database or a simple spreadsheet, etc). • Can save and retrieve work from electronic folders (and print if appropriate to task).	• Demonstrates logical choices and prediction when using a computer simulation, 'model' or game and can make simple edits to solve a problem. • Can produce, debug and edit an accurate sequence of instructions, include use of repeat, to control on-screen objects. • Can plan and create a program using decomposition; includes the use of selection (IF/ELSE) and/or variables. • Can talk about different types of input options e.g. motion /touch, microphone, data logging sensor; and output options e.g. switch, speakers, screen, etc. • Developing and using a wider computing 'vocabulary' relevant to work, such as de-bug, Apps, data logging, search engine, spam, Wiki, etc.	• Can talk about key online safety 'rules', knows what may be unacceptable behaviour, and knows where to go / report if a problem. • Can create and share some information online (such as school MLE, email / blog), demonstrating need to be respectful and safe. • Can find straight-forward information from (selected) website resource(s) and knows sites can contain, true or false facts, or opinion.
Year	Information Technology	Computer Science	Digital Literacy

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Y5	• Can use software effectively to create, design and manipulate for purposeful outcomes, such as DT, art or music projects. • Can combine resources from different sources into a digital presentation, showing clear sense of intended purpose and 'audience'. • Can find specific and valid information (i.e. be discerning) using sensible key words / search terms, from (selected) online web content, as fits the task. • Can (collect), analyse and draw conclusions from data, (such as through data logging or a survey or a prepared database or through manipulating a spreadsheet, etc). • Can save and retrieve work from various electronic folders on network (and controlled online environments where relevant).	• Can test, debug and edit a program that accomplishes a given goal, (simple computer 'game' or model or simulation), to solve a problem. • Can create an accurate program to accomplish a given goal, including the use of repetition (loops), selection (IF/ELSE) and variables. • Can use logical reasoning to deconstruct programs, evaluate their effectiveness and make them more challenging and / or 'elegant' / efficient. • Can use different types of input options and output options such as through sensing and control 'kits' and/or software, to solve a problem. • Has an understanding of computer networks (local, internet services and WWW). • Developing and using a wider computing 'vocabulary' in context of task, such as search engine, URL, variable, validate, digital footprint, spam, Wiki, etc.	• Can talk about key online safety 'rules', knows what may be unacceptable behaviour, and knows where to go / report if a problem. • Can demonstrate 'web-savvy' awareness, from a range of given scenarios, including conduct, contact and content 'risks' and issues. • Can communicate and collaborate online (such as in MLE blog/Wiki/forum), demonstrating respectful and safe behaviours. • Understands some simple steps to 'validate' information found on the Web, and appreciates how search results are selected and ranked.
Y6	• Can use software effectively to create, design and manipulate for purposeful outcomes, such as DT, art or music projects. • Can combine resources from different sources into a digital presentation, evaluate it, and show clearly intended purpose and 'audience' • Can be discerning and find valid information using sensible key words / search terms, from a range of online web content, as fits the task. • Can (collect), analyse, evaluate and draw conclusions from data, such as through survey, database or spreadsheet, etc. • Can save and retrieve work from various electronic folders on network (and controlled online environments where relevant).	• Can test, debug and edit a program that accomplishes a given goal, (simple computer 'game' or model or simulation), to solve a problem. • Can create & develop programs, by planning, debugging and applying programming skills of repetition (loops), selection (IF/ELSE) and variables, to accomplish specific goals. • Can use logical reasoning to deconstruct programs, evaluate their effectiveness and make them more challenging and / or 'elegant' / efficient. • Can use different types of input options and output options such as through sensing and control 'kits' and/or software to solve a problem. • Has an understanding of computer networks (local, internet services and WWW). • Developing and using a wider computing 'vocabulary' in context of task, such as search engine, URL, HTML, https, variable, validate, digital footprint, etc.	• Can demonstrate 'web-savvy' awareness, from a range of given scenarios, including conduct, contact and content 'risks' and issues. • Can discuss range of eSafety and eSecurity (privacy) issues and knows range of ways to report concerns or inappropriate behaviour. • Can communicate and collaborate online (such as in MLE blog/Wiki/forum), demonstrating respectful and safe behaviours. • Can check the results of web searches i.e. how useful, relevant, reasonable, valid, accurate, and appreciates how search results are selected & ranked.

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Vocabulary Development and Progression

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Smartie the Penguin (DL): Online, website, trusted adult Cyber Walk (IT): problem, undo, print, save, mouse	Robot Words (IT): Trial and error, mistake, digital I Can Sort Objects (IT): keyboard, save, retrieve, sort, graph, blogging	Who Painted This? (DL): Software, credit, pretend, online What is an Algorithm? (CS): instructions, clear, algorithm, control, movement	How Does My Garden Grow? (DL): navigate, website, safe, online Journeys- Beebot Garden Walk (CS): instruct, floor robot, algorithm, program, debug, route	I Can Code (CS): instructions, algorithm, commands, outcome Sharing My Iceberg Work (DL): image, text, blog, amend, retrieve, approve	Giving Instructions (CS): algorithm, outcome, sequence, digital device Design a Plate/Face (IT): create, design, correcting, choice, cautious
Year 2	Digiducks Dilemma (DL): trusted adult, issue, solution, import, images I can debug (CS): algorithm, debug, program, sprite, command	Follow that Footprint (DL): private, digital footprint, appropriate, inappropriate How does that grow? (IT): software, animation, tools, background	Mini-Beasties (IT): sort, categorise, navigate, branching database, datafile Finding out about Mary Seacole (DL): navigate, website, safe, information	How do you get to School Safely (IT): graph, tools, online survey, collect, share How does that work? (CS): clear, step-by-step, instructions, sequence, algorithm, name everyday digital devices	Say no to graffiti (IT): import, insert, image, text, copyright Do you like my blog? (DL/IT): resource, comment, blog, image, post	Let's email Grandma (CS): email, polite, respectful, ignore, delete Demolition Robot (CS): floor robot, debug, error, record, program, predict
Year 3	Safe Surfing with Dongle (DL): SMART rules, online behaviour, password, secure, trusted adult Internet Scenario card activity (DL): pretend, communicate, permission, personal, private Would I lie to You? (DL): fake, fact, opinion, fiction, websites	I can make an animation (IT): software, animation, sequence, save, retrieve, edit Journey of an email (CS): email, send, receive, reply, risk, communication	Do you like my presentation? (DL/IT): presentation, text, image, linked page, blog, save, retrieve, comment, post Words, Words, Words (CS): children can explain computing vocabulary used so far	I can use block coding (CS): command, sprite, debug, code, refine Creating a tessellation (IT): tessellation, copyright, create, edit, evaluate	See and hear my mix (IT): software, select, add, import, purpose, audience Exploring how things work? (CS): name several everyday digital devices, detect, errors, unsuccessful	Finding out about me (IT): input, data, navigate, software cards, database file, private information Can your robot make shapes? (CS): program, floor robot, 'trial and error', algorithms
Year 4	Internet search and presentation (DL/IT): search, internet,	I Can edit and record sounds (IT): sound clip, record, edit, organise, audio track, copyright	I can create a game using j2code (CS): program, sprite, 'hide and show', keyboard,	Let's email (CS): packet, email, sent, receive, reply	Logo Turtle Mania (CS): procedures, repeat command, rectify, debug	My exciting world landmarks (IT): relevant information, search, audience,

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	copyright, relevant , audience Internet Scenario card-social networking (DL): irresponsible , anonymous , pretend , report , concern , trusted adult , police	Apple Hunt (CS): edit, save, game , version number , online safety	random input , code, debug, test , refine, sequence , change	Dancing with Scratch (CS): simulation , selection , repetition , program, sprite, sequence, debug, refine, code script	Weather Data (IT): online resource , data, database , search, sort , interpret	presentation, ranked , copyright, NEN images What's a spreadsheet? (IT): data, spreadsheet , manipulate , formula
Year 5	What is the internet? (CS): internet, WWW , web address , network , server Design a Poster (IT): image, text, audience, evaluate, reflect , search engine Internet scenario card activity- gaming (DL): website, restriction , avoid , pressure , inappropriate, advice	Game creation with scratch (CS): game, programme, sprite, respond , environment , sequence , repeat , change , debug, variable , script Stop! Check! (DL): fake , unreliable , inaccurate, check, online information, true	Let's design in 3D (IT): 3D design , tools, software, adapt , change , requirements , zoom , orbit Simply Delicious (IT): data, spreadsheet, manipulate , formulae , input , calculation	Can you finish my story? (DL/IT): create , blog , comment , consider , refine , re-save , sharing , communicating, safety Building a sustainable house (IT): model , spreadsheet, layout formulae , cost implications , expenditure , modify , refine , budget	Logo shapes and patterns (CS): procedures, repeat command, rectify, debugging, save, retrieve, develop , variable	I can make an animation (IT): stop-frame motion animation , edit, copyright, modify, develop, feedback
Year 6	How fake is that? (DL): advert , blog, persuade , fake, risk , issue , peer pressure , report , podcast , video How can we trust the internet? (DL): valid , keywords , search terms , content , posting , fake information, sources	Simulating environments (CS): test , evaluate, adapt , change, script, improve , evaluate, refine, audience My exciting world landmarks (IT): relevant, information, present , research , incorporate , copyright, NEN images, reliable, valid, search engine	Let's Design and Combine in 3D (IT): create, edit, improve, software, 3D design Searching, Searching (CS): search engine, select, rank , sponsored link , advert , complex algorithm , user , code	Have fun with Scratch (CS): design, program, sense , respond, environment, select, input, code, test, refine, variable, problem, solution	What's wrong here? (CS): bug, error, outcome , fix , predict, algorithm, program	Robot Rampage (CS): tinker , program, respond, input, sensor , sequence, selection , debug Logo block of flats (CS): procedures, repeat, rectify, debug, save, retrieve, develop, variable, decompose

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Key:

Blue: new vocabulary

Black: revisited vocabulary

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