COMPUTING AT SJB

Succeeding, Enjoying, Belonging

	EYFS Computational Thinking Skills	How this is achieved in EYFS - Nursery	Computing KS1
EYFS	**Approaches -** **Tinkering** - Playing and exploring **Creating** - Creating, checking and fixing things **Collaboration** - Playing and working collaboratively **Persevering** - Not giving up **Concepts -** **Logic** - Anticipating and explaining is logical reasoning **Pattern** - Grouping things, comparing, spotting similarities and differences, working out rules **Abstraction** - Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary **Algorithms and Decomposition** - Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps	• Taking photographs using an ipad. • Record own voice on an ipad. • Following sets of instructions to carry out an activity or make something. • Placing events and objects in order. • Predicting the ending to a simple story or sequence of events. • Model summarising activities for the children eg 'First you washed your hands, then you collected your lunch box and now you are eating your meal'. • Taking apart pieces of old machinery eg a toaster to look at its component parts. • Open ended questions eg 'I wonder how this works?', 'I wonder how we can solve this problem?' • PSED activities that encourage collaborative play. • Specific praise for perseverance. • Sorting groups of objects into categories and giving a reason why they go together. • Show a range of familiar household objects such as a knife and fork and ask the children to name them and then describe what they are used for. • Games such as 'Simon Says' that require focused listening and actions.	• **Creating Media** • **Data & Information** • **Programming** • **E-Safety**

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	EYFS Computational Thinking Skills	How this is achieved in EYFS - Reception	Computing KS1
EYFS	**Approaches -** **Tinkering** - Playing and exploring **Creating** - Creating, checking and fixing things **Collaboration** - Playing and working collaboratively **Persevering** - Not giving up **Concepts -** **Logic** - Anticipating and explaining is logical reasoning **Pattern** - Grouping things, comparing, spotting similarities and differences, working out rules **Abstraction** - Naming and labelling, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary **Algorithms and Decomposition** - Responding to instructions, ordering things, sequencing things, introducing storylines, working out different ways to do things, breaking problems down into steps	• Exploring with Beebots • Taking apart pieces of old machinery eg a toaster to look at its component parts. • Show a range of familiar household objects such as a knife and fork and ask the children to name them and then describe what they are used for. • Taking photographs using an ipad. • Record own voice on an ipad. • Following sets of instructions to carry out an activity or make something. • Placing events and objects in order. • Model summarising activities for the children eg 'First you washed your hands, then you collected your lunch box and now you are eating your meal'. • Open ended questions eg 'I wonder how this works?', 'I wonder how we can solve this problem?' • PSED activities that encourage collaborative play. • Specific praise for perseverance. • Predicting the ending to a simple story or sequence of events. • Sorting groups of objects into categories and giving a reason why they go together. • Games such as 'Simon Says' that require focused listening and actions. • Model summarising activities for the children eg 'First you	• **Creating Media** • **Data & Information** • **Programming** • **E-Safety**

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Year	Creating Media	Data & Information	Programming	E-Safety
1	**Digital Painting** 1. To describe what different freehand tools do 2. To use the shape tool and the line tools 3. To make careful choices when painting a digital picture 4. To explain why I chose the tools I used 5. To use a computer on my own to paint a picture 6. To compare painting a picture on a computer and on paper **Doodle Buddy** **Digital Writing** 1. To use a computer to write 2. To add and remove text on a computer 3. To identify that the look of text can be changed on a computer 4. To make careful choices when changing text 5. To explain why I used the tools that I chose 6. To compare writing on a computer with writing on paper **Google Docs**	**Grouping Data** 1. To label objects 2. To identify that objects can be counted 3. To describe objects in different ways 4. To count objects with the same properties 5. To compare groups of objects 6. To answer questions about groups of objects **Google Slides/Keynote**	**Moving a robot** 1. To explain what a given command will do 2. To act out a given word 3. To combine forwards and backwards commands to make a sequence 4. To combine four direction commands to make sequences 5. To plan a simple program 6. To find more than one solution to a problem **Beebot** **Introduction to Animation** 1. To choose a command for a given purpose 2. To show that a series of commands can be joined together 3. To identify the effect of changing a value 4. To explain that each sprite has its own instructions 5. To design the parts of a project 6. To use my algorithm to create a program **Scratch Junior**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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2	**Digital Photography** 1. To use a digital device to take a photograph 2. To make choices when taking a photograph 3. To describe what makes a good photograph 4. To decide how photographs can be improved 5. To use tools to change an image 6. To recognise that photos can be changed **iPad Camera & Pixl** **Making Music** 1. To say how music can make us feel 2. To identify that there are patterns in music 3. To describe how music can be used in different ways 4. To show how music is made from a series of notes 5. To create music for a purpose 6. To review and refine our computer work **Chrome Music Lab**	**Pictograms** 1. To recognise that we can count and compare objects using tally charts 2. To recognise that objects can be represented as pictures 3. To create a pictogram 4. To select objects by attribute and make comparisons 5. To recognise that people can be described by attributes 6. To explain that we can present information using a computer **j2data Pictogram**	**Robot Algorithms** 1. To describe a series of instructions as a sequence 2. To explain what happens when we change the order of instructions 3. To use logical reasoning to predict the outcome of a program (series of commands) 4. To explain that programming projects can have code and artwork 5. To design an algorithm 6. To create and debug a program that I have written **Beebot** **An introduction to quizzes** 1. To explain that a sequence of commands has a start 2. To explain that a sequence of commands has an outcome 3. To create a program using a given design 4. To change a given design 5. To create a program using my own design 6. To decide how my project can be improved **Scratch Junior**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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3	**Animation** 1. To explain that animation is a sequence of drawings or photographs 2. To relate animated movement with a sequence of images 3. To plan an animation 4. To identify the need to work consistently and carefully 5. To review and improve an animation 6. To evaluate the impact of adding other media to an animation **iMotion** **Desktop Publishing** 1. To recognise how text and images convey information 2. To recognise that text and layout can be edited 3. To choose appropriate page settings 4. To add content to a desktop publishing publication 5. To consider how different layouts can suit different purposes 6. To consider the benefits of desktop publishing **Adobe Spark**	**Branching Databases** 1. To create questions with yes/no answers 2. To identify the object attributes needed to collect relevant data 3. To create a branching database 4. To explain why it is helpful for a database to be well structured 5. To identify objects using a branching database 6. To compare the information shown in a pictogram with a branching database **j2data Branch & Pictogram**	**Sequence in Music** 1. To explore a new programming environment 2. To identify that commands have an outcome 3. To explain that a program has a start 4. To recognise that a sequence of commands can have an order 5. To change the appearance of my project 6. To create a project from a task description **Scratch** **Events and Actions** 1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features 5. To identify and fix bugs in a program 6. To design and create a maze-based challenge **Scratch**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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4	**Audio Editing** 1. To identify that sound can be digitally recorded 2. To use a digital device to record sound 3. To explain that a digital recording is stored as a file 4. To explain that audio can be changed through editing 5. To show that different types of audio can be combined and played together 6. To evaluate editing choices made **Garage Band** **Photo Editing** 1. To explain that digital images can be changed 2. To change the composition of an image 3. To describe how images can be changed for different uses 4. To make good choices when selecting different tools 5. To recognise that not all images are real 6. To evaluate how changes can improve an image	**Data Logging** 1. To explain that data gathered over time can be used to answer questions 2. To use a digital device to collect data automatically 3. To explain that a data logger collects 'data points' from sensors over time 4. To use data collected over a long duration to find information 5. To identify the data needed to answer questions 6. To use collected data to answer questions **Data Loggers**	**Repetition in Shape** 1. To identify that accuracy in programming is important 2. To create a program in a text-based language 3. To explain what 'repeat' means 4. To modify a count-controlled loop to produce a given outcome 5. To decompose a task into small steps 6. To create a program that uses count-controlled loops to produce a given outcome **Logo** **Repetition in Games** 1. To develop the use of count-controlled loops in a different programming environment 2. To explain that in programming there are infinite loops and count-controlled loops 3. To develop a design that includes two or more loops which run at the same time 4. To modify an infinite loop in a given program 5. To design a project that includes repetition 6. To create a project that includes repetition **Scratch**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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5	**Vector Drawing** 1. To identify that drawing tools can be used to produce different outcomes 2. To create a vector drawing by combining shapes 3. To use tools to achieve a desired effect 4. To recognise that vector drawings consist of layers 5. To group objects to make them easier to work with 6. To evaluate my vector drawing **Google Drawings** **Video Editing** 1. To explain what makes a video effective 2. To use a digital device to record video 3. To capture video using a range of techniques 4. To create a storyboard 5. To identify that video can be improved through reshooting and editing 6. To consider the impact of the choices made when making and sharing a video	**Flat-file Databases** 1. To use a form to record information 2. To compare paper and computer-based databases 3. To outline how grouping and then sorting data allows us to answer questions 4. To explain that tools can be used to select specific data 5. To explain that computer programs can be used to compare data visually 6. To apply my knowledge of a database to ask and answer real-world questions **j2data Database**	**Selection in Physical Computing** 1. To control a simple circuit connected to a computer 2. To write a program that includes count-controlled loops 3. To explain that a loop can stop when a condition is met, eg number of times 4. To conclude that a loop can be used to repeatedly check whether a condition has been met 5. To design a physical project that includes selection 6. To create a controllable system that includes selection **Crumble Controller** **Selection in Quizzes** 1. To explain how selection is used in computer programs 2. To relate that a conditional statement connects a condition to an outcome 3. To explain how selection directs the flow of a program 4. To design a program which uses selection 5. To create a program which uses selection 6. To evaluate my program **Scratch**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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6	**3D Modelling** 1. To use a computer to create and manipulate three-dimensional (3D) digital objects 2. To compare working digitally with 2D and 3D graphics 3. To construct a digital 3D model of a physical object 4. To identify that physical objects can be broken down into a collection of 3D shapes 5. To design a digital model by combining 3D objects 6. To develop and improve a digital 3D model **Tinkercad** **Webpage Creation** 1. To review an existing website and consider its structure 2. To plan the features of a web page 3. To consider the ownership and use of images (copyright) 4. To recognise the need to preview pages 5. To outline the need for a navigation path 6. To recognise the implications of linking to content owned by other people **Google Sites**	**Spreadsheets** 1. To identify questions which can be answered using data 2. To explain that objects can be described using data 3. To explain that formulas can be used to produce calculated data 4. To apply formulas to data, including duplicating 5. To create a spreadsheet to plan an event 6. To choose suitable ways to present data **Google Sheets**	**Variables in Games** 1. To define a 'variable' as something that is changeable 2. To explain why a variable is used in a program 3. To choose how to improve a game by using variables 4. To design a project that builds on a given example 5. To use my design to create a project 6. To evaluate my project **Scratch** **Sensing** 1. To create a program to run on a controllable device 2. To explain that selection can control the flow of a program 3. To update a variable with a user input 4. To use an conditional statement to compare a variable to a value 5. To design a project that uses inputs and outputs on a controllable device 6. To develop a program to use inputs and outputs on a controllable device **micro:bit**	**Self-Image and Identity** - Lesson Link **Online Relationships** - Lesson Link **Online Reputation** - Lesson Link **Online Bullying** - Lesson Link **Managing Online Information** - Lesson Link **Health, Well-being, Lifestyle** - Lesson Link

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1	Digital Painting Doodle Buddy App Digital Writing Google Docs App	Grouping Data Google Slides/Keynote App	Moving a robot Beebot App Introduction to Animation Scratch Junior	https://projectevolve.co.uk/
2	Digital Photography iPad Camera & Pixl App Making Music Chrome Music Lab Website	Pictograms j2data Pictogram Website	Robot Algorithms Beebot App An introduction to quizzes Scratch Junior	https://projectevolve.co.uk/
3	Animation iMotion Desktop Publishing Adobe Spark	Branching Databases j2data Branch & Pictogram Website	Sequence in Music Scratch Website Events and Actions Scratch Website	https://projectevolve.co.uk/
4	Audio Editing Garage Band App Photo Editing	Data Logging	Repetition in Shape Repetition in Games Scratch Website	https://projectevolve.co.uk/
5	Vector Drawing Google Drawings Video Editing	Flat-file Databases j2data Database Website	Selection in Physical Computing Crumble Controller Selection in Quizzes Scratch Website	https://projectevolve.co.uk/
6	3D Modelling Tinkercad App Webpage Creation Google Sites	Spreadsheets Google Sheets	Variables in Games Scratch Website Sensing micro:bit kit	https://projectevolve.co.uk/