

Computing Curriculum

Computing			
Base 1 – Year R/1			
Whole School Theme	Around the World	Wild Isles	Peering into the Past
What does this mean to me? Why does this matter?			
Unit of Work	Digital Paintings	Grouping Data	Events in actions in programmes
National Curriculum	To use purposefully, the create, organise, store, manipulate and receive digital context. To recognise common uses of information technology beyond the school.	To use logical reasoning to predict the behaviour of simple programs. To use purposefully, the create, organise, store, manipulate and receive digital context.	To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.
Prior Learning	Y1 children in reception (B1 2021-23) will have looked at colours and the names of colours. They will know what a painting is and how to create a painting using different brush sizes and equipment.	Y1 children in reception (B1 2022-23) will have sorted objects into categories and will have explained how they have sorted their objects. Children will also have used a digital device and stored their own work.	Y1 children in reception (B1) 2022-23 will be familiar with prepositional language such as forwards and backwards, up, and down.
Why this, why now?	This focuses the children on using technology to produce a piece of artwork. It also enables children to organise and store their own digital context on a save drive.	This focuses children on using information devices to represent data.	This focuses on children exploring events in actions starting to create a program that executes a precise instruction.
Core Learning	<p style="text-align: center;">Concept:</p> <p>During this unit, learners will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while generating inspiration from a range of artists' work. The unit concludes the learners considering their preferences when painting with and without the use of digital devices.</p> <p style="text-align: center;">Enquiry Question:</p> <p>How can you use a digital device to create a piece of art?</p>	<p style="text-align: center;">Concept:</p> <p>During this unit, sort items into a range of criteria. Children will also sort items using the grouping activities on j2e.com. From this, children will begin to explore databases looking at tally charts, bar graphs, line graphs and pictograms</p> <p style="text-align: center;">Enquiry Question:</p> <p>How can you sort these objects digitally? Is there another way to sort these objects?</p>	<p style="text-align: center;">Concept:</p> <p>During this unit, children will know what an algorithm is in a set of instructions. Children will design their own simple algorithms and move onto making two objects move simultaneously.</p> <p style="text-align: center;">Enquiry Question:</p> <p>How can you move a sprite? Can you return the sprite to its original position?</p>

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Opportunities for deepening learning <i>Know more and remember more.</i>	Making connections to geography learning – a study of the local grounds and paintings.	Links to maths in sorting and counting objects. Links to geography sorting and counting objects in the local wild and gardened plants. Links to science in classifying living things.	Links to maths with position and direction.
Key Figure / Artist	JIT5 Graphic designers/artists	JTData	JTCode
Vocabulary	paint tool digital brush-size shape line colour	categories chart computer data information label pictogram record sort table text	algorithm bug computer debug compose device input instruction output solution
Quick Quiz	What tool can you use to create a piece of art on a digital device? What brush size would you use to paint grass? What brush size would you use to paint a tree? Can you find your work from last lesson?	How would you sort these animals on a digital device? What is a chart used for? Show me where you have organised some data on J2E.	What happens when you repeat a step in an algorithm? Show me how to load your algorithm.

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Base 2 – Year 1/2

Whole School Theme	Around the World	Wild Isles	Peering into the Past
What does this mean to me? Why does this matter?			
Unit of Work	Programming animations	Programming Quizzes	Robot algorithms
National Curriculum	To use technology purposefully to create, organise, store, manipulate and retrieve digital content.	To recognise common uses of information technology beyond school. To use logical reasoning to predict the behaviour of simple programs. To use technology purposefully to create, organise, store, manipulate and retrieve digital content.	To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.

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Prior Learning	Children in Y2 in Y1 (B2-2022-23) looked at using google earth and satellite photos. Children looked how to retrieve these photos using technology. Children in Y2 in Y1 (B1 2022-23) made digit art using brush size and printing.	Children in Y2 in Y1 (B1 and B2 combined 2022-23) will have organised groups using digital devices from bugs that they found on a mini-beast hunt across the school grounds. They looked at different ways to collect and present data creating simple questions from this data.	Children in Y2 in Y1 (B2 2022-23) learnt that an algorithm is a set of instructions which a sprite follows. Children programmed a moving sprite. Children in Y2 in Y1 (B1 2022-23) used directional algorithms to move a spaceship creating a pattern.
Why this, why now?	This focuses children's learning on moving on from organising and storing images to manipulating images for animation. It will also introduce early stages of programming.	This focuses children's learning further forward by using previous knowledge on simple graphs. Children will now be creating their own quizzes and presenting their finding using data.	This focuses children's learning further by moving their understanding of algorithms to use repeat commands and changing backdrops and sprites appearance.
Core Learning	<p>Concept: To use a range of tools to reproduce an image to animate. Make and edit images to create an animation. To change colours in animation for effect.</p> <p>Enquiry Question: Does more frames look better in animation?</p>	<p>Concept: To compose quizzes by writing a program. To create visual commands for quizzes.</p> <p>Enquiry Question: Do all quizzes have to be the same? Is there a way of having more than two answers?</p>	<p>Concept: To program a change in backdrops. To program a sprite to change appearance. To follow a set of instructions and debug a problem.</p> <p>Enquiry Question: When would we need to change the backdrop or appearance of a sprite?</p>
Opportunities for deepening learning <i>Know more and remember more.</i>	Children can deepen their learning about the environment by creating animations of the seasons.	Children can link their quiz to exploring the difference between things that are living, dead or were once alive.	Link to geography with the use simple compass directions (North, South, East and West) and locational and directional language [for example, near and far; left and right], to describe the location of features and routes on a map.
Key Figure	J2Launch	J2Quiz J2Data	J2Coding
Vocabulary	animate, duplicate, program, rotate, tools, weight, repeat	quiz, variable, data, chart, findings, input, output	algorithm, clear screen, commands, instructions, repeat, variable
Quick Quiz	What does a frame do? How can you add another frame? Can you show me your animation?	What might you use a quiz for on a computer? Can you show me a quiz you have created? How would you show the results from your quiz?	How would you know if a problem has happened with your algorithm. Can you show me how you would change your sprite's appearance.

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			What is a backdrop?
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Base 3 – Year 3			
Whole School Theme	Around the World	Wild Isles	Peering into the Past
What does this mean to me? Why does this matter?			
Unit of Work	Repetition in shapes	Branching databases	Repetition in games
National Curriculum	To use sequence, selection, and repetition in programs; work with variables and various form of input and output	To 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 accomplishes given goals, including collecting, analysing, evaluating, and presenting data and information.	To use sequence, selection, and repetition in programs, work with variables and various form of input and output. To use logical reasoning to explain how some simple algorithms work and detect and correct algorithms and programs.
Prior Learning	Y3 children in Y2 (B2 2022-23) will have created drawings using shapes, lines, and other tools to programme animation. Children will have also used computing devices to follow create a pattern using simple instructions on j2code.	Y3 children in Y2 (B2 2022-23) looked at collating data using digital devices. This data was collected using tally charts and then presented on j2e using block charts.	Y3 children (B3 2023-24) children in Autumn term used reptation in shapes. Y3 children in Y2 (B2 2022-23) used scratch to create simple algorithms.
Why this, why now?	This focuses the children’s learning from simple drawings and animation to repetition of drawings using a code.	This focuses children on learning how to branch using digital data bases. Children will know how to group and create branching databases that can be used to collect and compare data.	This focuses children’s learning on how to repeat an algorithm until there is a change in the algorithm.
Core Learning	<p style="text-align: center;">Concept:</p> <p>To draw a square using a repeat command. To alter variables to draw other regular polygons. To draw multiples shapes in multiples colours using pen down and pen up. To recognise abbreviations in a programmed script.</p>	<p style="text-align: center;">Concept:</p> <p>To create a simple branching database, selecting names, adding names and descriptions for each one. To pose various questions to enable branching in a database.</p> <p style="text-align: center;">Enquiry Question:</p> <p>Which question is the best way to start branching when sorting animals?</p>	<p style="text-align: center;">Concept:</p> <p>To repeat a sprite’s movement in an algorithm by using forever do or repeat control. To try different actions when a sprite touches. To experiment with new backdrops and changes in backdrops.</p> <p style="text-align: center;">Enquiry Question:</p>

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	Enquiry Question: Which is the hardest regular polygon to repeat?		What can I change when a repeated sprite touches a colour or another sprite?
Opportunities for deepening learning <i>Know more and remember more.</i>	This unit provides opportunities to deepen children's understanding of the properties of 2D shapes.	This unit deepens children's understanding of comparing and grouping rock based on their appearance and physical properties.	Children can deepen their understanding of fieldwork in geography by including creating maps with human and physical features in the local area with moving sprites (cars, buses or trains).
Key Figure / Artist	J2code (logo)	JIT5 (branching)	J2code (visual)
	Piet Mondrian (artist)		
Vocabulary	repeat, forward, right turn, left turn, pen up, pen down Digital literacy (abbreviations) fd, rt, lt, pu, pd	database, branching, classifying, lead down, convenient, organised	code, sprite, costume, events, control, sensing, operators, sequence Digital literacy Forever do
Quick Quiz	What does fd, rt, lt, pu and pd mean? Names some shapes that you can repeat. Can you show me how to repeat a square on logo?	What could you use a branching database for? Can you show me a branching database? Did you encounter any problems in your branching database? How did you overcome these problems?	How can you control a sprite to repeat a sequence? Can you show me a sprite that has repeated a sequence? Name 2 ways you can change a sprite that is repeating a sequence.

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Base 4 – Year 4/5

Whole School Theme	Around the World	Wild Isles	Peering into the Past
What does this mean to me? Why does this matter?			
Unit of Work	Stop frame animation	Selection in quizzes	Variables in games

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National Curriculum	To use sequence, selection, and repetition in programs, work with variables and various form of input and output.	To 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 accomplishes given goals, including collecting, analysing, evaluating, and presenting data and information.	To use logical reasoning to explain how some simple algorithms work and detect and correct algorithms and programs. To use sequence, selection, and repetition in programs; work with variables and various form of input and output
Prior Learning	Children in Y4 in Y3 (B3 2022-23) looked at manipulating content using simple frames. Children in Y5 in Y3 (B3 2021-22) looked at animation and photograph editing in blogging. Children in Y4 and 5 (B3 2022-23) looked at creating patterns with shapes.	Children in Y4 and 5 in Y3 (B3 2022-23) will have created their own branching databases by grouping animals. Children in Y5 in Y3 (B3 2021-22) collated data from a science experiment and presented the data in graph form.	Children in Y4 and 5 in Y3 and Y4 (B3 2022-23) will have looked at using j2e code to create simple algorithms with inputs and outputs. Children in Y4 and 5 in Y3 and Y4 (B3 2022-23) will have created coding of shapes using the forever if and repetition.
Why this, why now?	This focuses children's learning on multiple frames of animation. Small increments between individual photos frames will be manipulated to show how film making can be used with digital devices.	The focuses children's learning on creating quizzes with various selections collate further data, which can then be collected, analysis, evaluation and presented. The process of selection in quizzes allows for further data and information to be collated.	This focuses children on programming algorithms that include different variables using the 'if' sequences. Children will know how to repeat sequences, and by adding in variables, they will be able to change sprites design, direction, or costume.
Core Learning	<p>Concept:</p> <p>To be able to take a photograph, store and locate a photograph on a device. To move an object in a photo by a small increment to show movement. To know there are different types of stop animation (object movement, clay, pixilation, puppet, and silhouette)</p> <p>Enquiry Question</p> <p>Which is the most effective type of stop animation?</p>	<p>Concept:</p> <p>To be able to create a quiz that includes selection answers as well as questions. To be able to analyses and present data and information. To know there are various ways to pose questions in quiz to gather further information.</p> <p>Enquiry Question</p> <p>What is the most valuable question you can ask in a quiz?</p>	<p>Concept:</p> <p>To be able to add a variable into a code such as when a sprite touches another sprite or when a sprite touches a colour. To be able to program a game that uses variables using the 'forever' code and the 'if' code.</p> <p>Enquiry Question</p> <p>What different variables can you add to change a spite?</p>
Opportunities for deepening learning	Children can deepen their understanding of properties of change by creating a stop frame animation of dissolving, mixing, change of stage and reversible change using frame to show each process.	Children can deepen their learning by making links to Wrenbury Railway and data which can be presented (traffic/bridge closures). Children can design quizzes that include selection allowing their participants selections.	Children can deepen learning by making links to the Anglo-Saxon period. Children will be able to create their Sprites based on Anglo Saxon characters and backdrops for their game.

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<i>Know more and remember more.</i>			
Key Figure / Artist	JIT5	J2vote	J2code
	Pixar		
Vocabulary	motion, silhouette, animation, backlight, cut out, crop, freeze	participate, selection, chart, multiple choice	forever if, variables, procedure, sensing, control
Quick Quiz	Name 3 different types of stop frame animation. Can you show me what you would change on a photo in stop frame animation? Show me an example of your stop frame animation.	When would a participant need to create a multiple choice in a quiz? How can you analyse the responses from your quiz? Show me your quiz you have created with selections.	What is a variable in coding? Show me how you can add a variable into your program. Show me your game you have created.

Computing			
Base 5 – Year 6			
Whole School Theme	Around the World	Wild Isles	Peering into the Past
What does this mean to me? Why does this matter?			
Unit of Work	Debugging in games	Introduction to spreadsheets	Vector Drawings
National Curriculum	To use logical reasoning to explain how some simple algorithms work and detect and correct algorithms and programs.	To 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 accomplishes given goals, including collecting, analysing, evaluating, and presenting data and information.	To use sequence, selection, and repetition in programs, work with variables and various form of input and output.
Prior Learning	Y6 and Y5 children in Y5 and Y4 (B4 22-23) created algorithms using scratch to move, repeat, add variables and debugged problems within a code.	Y6 and Y5 in Y4 and Y5 (B4 2022-23) children will have learnt about collecting data in tables in maths. Children will know	Y6 and Y5 children in Y4 and Y5 (B4 2022-23) created stop frame animations using repetition and selection to create sequences.

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		about columns and rows and how data is presented in these columns and rows.	
Why this, why now?	This focuses the children’s understanding of how a bug in a program can affect the running of the code and that a sprite or a backdrop will behave in a certain way effecting the outcome of the program.	This focuses children’s understanding of how spreadsheets can be used to collate data. Children will have a good understanding of how tables can be used to present data, and this unit introduces formulas and how digital devices and speed up the process of analysing and presenting information.	This focuses the children use of design in computing developing from creating and drawing a digital image, to repetition in shapes to drawing a vector design using shapes, lines, curves, and repetition.
Core Learning	<p>Concept: To design a game using sprites that can be accessed by younger children. To find and correct bugs that do not allow a program to run effectively. To follow a code to find a bug.</p> <p>Enquiry Question How do you know if a program has a bug?</p>	<p>Concept: To use a spreadsheet to record gathered data. To use a formular wizard to add a formula to automatically make a calculation in a cell. To create a graph to show data collected. Using spreadsheets to create computational models and answer questions.</p> <p>Enquiry Question How do spreadsheets speed up the process of analysing data?</p>	<p>Concept: To write a procedure to draw an object (window or door). To write multiple procedures using colours for design. To use procedures to draw geometric shapes for a design.</p> <p>Enquiry Question Which is the most challenging shape to design on logo?</p>
Opportunities for deepening learning <i>Know more and remember more.</i>	This provides an opportunity for children to develop a game based on Ancient Roman characters. Children can design characters and backdrops that are based on Greek myths adapting the template provided on j2e.	To unit provides an opportunity for children to create a spreadsheet that can be used to calculate sports day results in the summer term. It deepens understanding of mathematical formulars and different information can be presented on different graphs.	This unit provides an opportunity to deepen an understanding of 6 figures grid refences as children will be using grid refences to create their vector drawings. They can also reproduce pattens, drawing and symbols found on a map. (os maps)
Key Figure	Grace Hopper Popularised the term ‘computer bug’		
	https://www.j2e.com/code/template/Y5template3?edit	J2e (office – spreadsheets)	J2code (logo)

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Vocabulary	algorithms, conditionals, loops, events, decompose, debug, code, program	average, cells, charts, count, formular, move cell tool, copy, paste, spreadsheet	random, x-position, y-position, motion blocks, debug, error, co-ordinates
Quick Quiz	What is a bug in an algorithm? How can you find a bug in an algorithm? There is a bug in this algorithm, show me how you will fix it.	What is a spreadsheet? How can you use a spreadsheet to collect data? Show me your spreadsheet you have collected? Which is the best graph to show sports day results?	What is a vector drawing? Show me how you can use pen up and pen down on logo. Show me your vector drawing that you have created. How can you change the colour of your line?