

**Year 1**

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched-on Online Safety - Year 1</b></p> <ul style="list-style-type: none"> <li>• Create rules that help us stay safe online;</li> <li>• Understand the impact of our behaviour on others;</li> <li>• Remembering to take time out from technology;</li> <li>• Understanding what is meant by personal information;</li> <li>• Finding out what it means to be a good digital citizen;</li> <li>• Learning how to stay safe when playing online games.</li> </ul>	<p><b>Coding using a Bee-Bot</b></p> <ul style="list-style-type: none"> <li>• See attached Codelt! Beebot progression of skills <a href="http://code-it.co.uk/ks1/turtle/ks1turtle">http://code-it.co.uk/ks1/turtle/ks1turtle</a></li> <li>• Know key Beebot functions</li> <li>• Use fakebots to predict what would happen when a program is run + test.</li> <li>• Create own journeys using Beebot mats</li> <li>• Evaluate journeys (longest, shortest, A to B avoiding C etc.)</li> <li>• Can apply knowledge to a more complex coding game (like Lightbot) (MA)</li> </ul>	<p><b>Pictograms</b></p> <ul style="list-style-type: none"> <li>• Collect information about a topic (favourite colours, birthdays etc.) in simple tables.</li> <li>• Use J2E infant toolkit to create a pictograph (WA) and to explore other types of graph (MA).</li> <li>• Answer questions about a given pictograph.</li> </ul>	<p><b>Make it!</b></p> <ul style="list-style-type: none"> <li>• Use a word bank and keyboard to create a birthday/celebration card using J2E infant toolkit including a child-drawn picture.</li> <li>• Use Book Creator on iPad to make a booklet documenting a piece of work in another subject.</li> <li>• Record a video using iPad and Flipgrid (any topic).</li> </ul>	<p><b>Using a Computer</b></p> <ul style="list-style-type: none"> <li>• Using a keyboard to enter lower case and capital letters, numbers and spaces.</li> <li>• Using a mouse to control objects on a screen.</li> <li>• Opening a website</li> <li>• Understanding the key areas of an operating system/ computer - Start Menu, close button, home button, log off etc.</li> <li>• Knowing the names of the main parts of a computer - screen, mouse, keyboard, switch, button.</li> </ul>
WA Yellow=new or updated	Can suggest ideas as to how they can stay safe when using computers and working online.	Can create a simple sequence of steps to complete a task or to program a Beebot.	Can interpret data from simple pictograms and tables	Can create content using simple software (e-books, videos, images and simple graphs etc.) with adult support.  Can save and retrieve their work when using an iPad or desktop computer with support or guidance.	
GD	Can explain what personal information is and why we shouldn't share it.	Can predict what will happen when a program is run and can solve problems that occur.	Can identify the differences between pictograms and bar graphs.	Can create content using simple software (e-books, videos, images and simple graphs etc.) independently.  Can save and retrieve their work when using an iPad or desktop computer independently, and online with adult support.	
Software/Equipment		Bluebots Beebot Mats Beebot App Lightbot JR App Beebot Sequence Cards JIT Turtle	J2E Infant Toolkit - Pictograph Tool	J2E Infant Toolkit - Picture/Text/Mix tool Book Creator - App or Online Tool iPad Video Tool Flipgrid	Hive Computers

**Year 2**

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched On Online Safety - Year 2</b></p> <ul style="list-style-type: none"> <li>● Create rules that help us stay safe online;</li> <li>● Understand what online bullying is and describe the consequences;</li> <li>● Use a search engine safely;</li> <li>● Can generate a strong password and know how to keep it safe;</li> <li>● Know how to respond to e-safety incidents;</li> <li>● Understand PEGI ratings for games.</li> </ul>	<p><b>Algorithms on Computers</b></p> <p>J2R Infant Toolkit - turtle</p> <ul style="list-style-type: none"> <li>● Revisit learning from Y1 (predict a route, change a route, evaluate a route)</li> </ul> <p>Scratch JR</p> <ul style="list-style-type: none"> <li>● See Code-It Scratch JR Planning</li> <li>● Explore Scratch JR to work out key features;</li> <li>● Create a travel algorithm on the playground then convert to code;</li> <li>● Create a dance algorithm (that could contain repeats (MA) and convert to code;</li> <li>● Create an 'About Me' animation including digital imagery and sound - link to PSHE.</li> </ul>	<p><b>Branching Databases</b></p> <ul style="list-style-type: none"> <li>● Link to Science topic/shape in maths;</li> <li>● Using images (minibeasts?) - look for patterns and differences. Sort using venn diagrams.</li> <li>● Use J2E infant toolkit branch to sort images and add questions.</li> <li>● Test by playing 'guess who'</li> </ul> <p><b>Graphs</b></p> <ul style="list-style-type: none"> <li>● Collect data on a curriculum linked topic using tally charts;</li> <li>● Analyse data (most popular, least etc.);</li> <li>● Convert to graphs - create both on paper and using J2E infant graph.</li> </ul>	<p><b>From previous years: Flipgrid blogging, Book Creator</b></p> <p><b>Taking and Editing Photographs</b></p> <ul style="list-style-type: none"> <li>● E-safety: discuss photo permission;</li> <li>● Take photographs - encourage children to consider framing (head in the centre etc.). Compare pictures to evaluate.</li> <li>● Use Snapseed to add a filter, text, crop or frame.</li> <li>● Export to camera roll for use in another app..</li> <li>● Use photographs to tell a story using Book Creator - comic book frames.</li> <li>● Share and peer assess.</li> </ul>	<p><b>Using a Chromebook</b></p> <ul style="list-style-type: none"> <li>● Logging in;</li> <li>● Navigating;</li> <li>● The differences between a Chromebook, ipad and PC;</li> <li>● Navigating to websites;</li> <li>● Searching (link to e-safety)</li> <li>● Using a touch-pad (one finger, two finger and three finger clicks, zooming, rotating).</li> </ul> <p><b>Technology in the Classroom</b></p> <ul style="list-style-type: none"> <li>● What is a computer? Understand that there is an input, process and output;</li> <li>● Identify computers in their daily lives;</li> <li>● Sort computers from non-computers.</li> </ul>
WA Yellow=new or updated	Knows that we should report any online safety issues to a trusted adult.	Using an existing model, can create and debug simple programs.	Can use several methods of sharing data, including charts, graphs and branching databases.	Create content involving mixed media using a range of software programs and apps, featuring images and information from online sources.	Can use their login information to access the Learning Platform.  Can identify examples of computers in their daily lives.
GD	Can suggest what somebody should do in a scenario involving online bullying	Can use logic to accurately predict what will happen when a program is run.	Can evaluate which method of sharing data would be most useful in a given situation.	Can apply skills learned to creating mixed media in a variety of curriculum and home-learning contexts.	Can explain the differences between computers and non-computers.
Software/Equipment		<ul style="list-style-type: none"> <li>● <b>J2E Infant toolkit - turtle</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b>J2E infant toolkit - branch/graph</b></li> </ul>	iPad camera Snapseed Book Creator	Chromebooks

**Year 3**

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched On Online Safety - Year 3</b></p> <ul style="list-style-type: none"> <li>● Create rules that help us stay safe online;</li> <li>● Understand how we can deal with online bullying;</li> <li>● Assess the trustworthiness of websites;</li> <li>● Begin to understand our digital footprint;</li> <li>● Practise good netiquette;</li> <li>● Understanding that online identities may be misleading.</li> </ul>	<p><b>Algorithms including Repeat Commands</b></p> <p>Logo - Link to right angles</p> <ul style="list-style-type: none"> <li>● Revisit algorithm concepts using games like Lightbot JR and the human crane (<a href="http://code-it.co.uk/ks1/crane/humancrane">http://code-it.co.uk/ks1/crane/humancrane</a>)</li> <li>● See code-it progression of logo skills (<a href="http://code-it.co.uk/year3plan/ogoplan/">http://code-it.co.uk/year3plan/ogoplan/</a>)</li> <li>● Introduce Logo and the key commands - tinker by making shapes and the square alphabet</li> <li>● Use Lightbot level __ to introduce loops</li> <li>● In logo, create squares and square based repeated patterns.</li> <li>● Use squared paper to design their own pattern and to plan their code.</li> <li>● Make, test and debug.</li> </ul> <p><b>Decomposition (alongside above)</b></p> <ul style="list-style-type: none"> <li>● Hand jive activity (<a href="https://www.barefootcomputing.org/resources/decomposition-unplugged-activity-ks2">https://www.barefootcomputing.org/resources/decomposition-unplugged-activity-ks2</a>)</li> <li>● Link to work in Logo.</li> </ul>	<p><b>Data Logging</b></p> <ul style="list-style-type: none"> <li>● Link to work in Science/Maths</li> <li>● Practise using data loggers to measure sound, light, temperature and speed with relevant activities.</li> <li>● Log data in appropriate experiments using data loggers.</li> <li>● Link to computers to create appropriate graphs.</li> <li>● Create own investigations involving use of data loggers</li> </ul>	<p><b>From previous years: Flipgrid blogging, Book Creator, Photo Editing</b></p> <p><b>Making and Editing Videos</b></p> <ul style="list-style-type: none"> <li>● Tinker with iMovie - editing, cuts and fades, filters, captions and sound effects</li> <li>● Link to English/Newswise - news reporting</li> <li>● Use a storyboard to plan their news report</li> <li>● Film using ipads and tripods - could include green screen</li> <li>● Edit and solve problems</li> <li>● Share and peer-assess using Flipgrid.</li> </ul> <p><b>Presenting Information</b></p> <ul style="list-style-type: none"> <li>● Link to presenting data from data logging and Science units</li> <li>● Evaluate existing slides according to readability, colour and layout</li> <li>● Plan and create a presentation (slides and script) using presentations software and collaborative tools (see left).</li> <li>● Include information from online sources - discuss copyright and creative commons</li> <li>● Use Flipgrid to present and record work.</li> <li>● Peer assess using Flipgrid responses.</li> </ul>	<p><b>Collaborating Online</b></p> <ul style="list-style-type: none"> <li>● Understand etiquette of working with other online</li> <li>● Understand e-safety rules of communicating with others online</li> <li>● Use the communication and collaboration tools in G-Suite/J2E to complete group tasks</li> <li>● Provide constructive feedback on work completed online</li> <li>● Understand the difference between the internet and the World Wide Web.</li> <li>● Beginning to use appropriate search terms to find information online.</li> </ul>
WA Yellow=new or update	Can communicate appropriately with others online, and are aware of what to do when problems occur.	Can create a program in logo including a loop command, and can make predictions as to what will happen when a program is run.	Can use data logging hardware and software to gather and interpret data in a Scientific Enquiry	Can use a range of software, including presentation and video editing software to create content.	Can use online tools responsibly to share work and collaborate with others

d					
GD		<p>Can explain how a more complex program can be simplified using loop commands.</p> <p>Is beginning to work systematically to find and fix bugs in the programs they create</p>	<p>Can make suggestions as to where data logging hardware and software can be used in other situations.</p>	<p>Can independently select the appropriate software to use to complete a given task, providing reasons for their choice.</p> <p>Can make critical comparisons between texts created digitally, making their reasoning clear.</p>	
Software/Equipment		<b>J2E logo</b>	<p>Data Harvest/TTS Data/Google Science Journal</p> <p>Laptops containing Data Harvest software.</p>	<b>J2E5/Google Slides/FlipGrid iPads/iMovie</b>	J2E Tools/J2Message/Google Slides

**Year 4**

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched On Online Safety - Year 4</b></p> <ul style="list-style-type: none"> <li>Review and edit online safety rules;</li> <li>Deal positively with peer pressure;</li> <li>Develop consideration for the ideas I post online;</li> <li>Understand the risk and prevention of data loss;</li> <li>Understanding and respecting digital rights and responsibilities;</li> <li>Understanding differences between virtual and real friendships.</li> </ul>	<p><b>Microbits: Inputs, Selection and Variables</b></p> <p><b>See separate coding document</b></p> <ul style="list-style-type: none"> <li>Follow MB4PS Microbit Units</li> <li>Understand the different parts of a Microbit and relate them to 'real-life' technology</li> <li>Display information on the screen triggered by an action</li> <li>Use variables related to repeated tasks</li> <li>Use selection to provide different outputs depending on information from the sensors</li> <li>Apply their learning by designing and creating a step counter (band and program) - link to Science.</li> </ul>	<p><b>Collecting and Presenting Data</b></p> <ul style="list-style-type: none"> <li>Building on learning from previous year groups;</li> <li>Can create a form to collect data on a given topic, selecting the most appropriate form or response (text, radio button, checkbox, sliding scale);</li> <li>Can interpret the results to answer pre-determined questions;</li> <li>Can select the appropriate graph (bar chart, pictogram, pie chart) to show their results.</li> </ul>	<p><b>From previous years: Flipgrid blogging, Book Creator, Photo Editing, Filmmaking, Presenting Information</b></p> <p><b>Recording and Editing Sound</b></p> <ul style="list-style-type: none"> <li>Use a piece of modelling software (such as Isle of Tune) to create musical patterns;</li> <li>Make sound recordings of voice and music, considering external noise and volume;</li> <li>Create music using digital synthesising software (Garageband);</li> <li>Edit recorded sound (changing volume, cutting, repeating and adding effects);</li> <li>Share and evaluate created sounds.</li> </ul> <p><b>Word Processing</b></p> <ul style="list-style-type: none"> <li>Can change font, font size, colour and other formatting settings for typed text in a range of programs, considering aesthetics and accessibility;</li> <li>Can incorporate graphics, tables and organisational features (such as bullet points), wrapping text as appropriate.</li> </ul>	<p><b>Email and Messaging</b></p> <ul style="list-style-type: none"> <li>Can write a message in the form of an email, using the correct grammar and conventions;</li> <li>Can identify the key parts of an e-mail, including the To: CC: BCC: fields, footers and email addresses;</li> <li>Compares e-mail with other messaging systems (sms, instant messaging, comments on online documents);</li> <li>Can use a messaging system (like Google Classroom, J2E message or Hangouts) with respect and conforming to e-safety rules.</li> </ul>
WA Yellow=new or updated	Can give several options as to how we could respond to cyber bullying/ e-safety incidents	Can create a program that includes selection and variables, and is beginning to work systematically to find and fix bugs in the programs they create	Can plan and create a form to collect data, that includes text, multiple choice and number based responses.	Can use a range of software, including sound editors and word processors to create and combine content.	Can identify the key parts of an e-mail or online message, and is able to use similar services responsibly.
GD		Independently works systematically to find and fix bugs	Selects the most appropriate way to display the data they have	Evaluates and improves their own work based upon the needs	

		<p>in the programs they create.</p> <p>Can accurately predict what will happen when a program including selection is run.</p>	<p>collected, giving reasoned explanations for their choice.</p>	<p>of the end user (colours, visibility, fonts, size, iconography).</p>	
Software/Equipment		<p><b>J2E code - Microbit Microbits</b></p>	<p><b>Google Forms/J2E5</b></p>	<p><b>J2E5 Garageband Bandlab</b></p>	<p><b>J2E Message</b></p>

Year 5

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched On Online Safety - Year 5</b></p> <ul style="list-style-type: none"> <li>Review and edit online safety rules;</li> <li>Understand the impact of online behaviour;</li> <li>Understand advertisements and endorsements online;</li> <li>Protecting our online reputation;</li> <li>Understand and apply copyright laws;</li> <li>Understand how game developers make money.</li> </ul>	<p><b>Procedures</b></p> <ul style="list-style-type: none"> <li>Can decompose more complex programs into simpler steps using procedures.</li> </ul> <p><b>Logo</b></p> <ul style="list-style-type: none"> <li>Create procedures for drawing a range of 2D shapes and create repeated patterns using loops.</li> </ul> <p><b>Scratch</b></p> <ul style="list-style-type: none"> <li>Create procedures to support solving of mathematical conversions (area, converting m to cm);</li> <li>Apply knowledge of loops, selection, variables and procedures to plan and create an action based games.</li> </ul> <p><b>Codebreaking (Barefoot)</b></p> <ul style="list-style-type: none"> <li>Use pattern seeking skills to identify simple substitution codes;</li> <li>Create Scratch programs to break substitution codes;</li> <li>Understand the importance of our local area in the history of codebreaking;</li> <li>Understands how machine learning can be used to solve codes + solve problems.ame.</li> </ul>	<p><b>Using Databases</b></p> <ul style="list-style-type: none"> <li>Can search a database (J2E data, Gapminder) to collect information, find patterns and present data.</li> <li>Can create their own database to collate information to present.</li> <li>Can decide on the most appropriate way to present their information.</li> </ul> <p><b>Microbit Data Logging</b></p> <ul style="list-style-type: none"> <li>Can use selection and the various input devices on the Microbit to gather information (making a force meter, max/min temperature gauge) as part of Science lessons.</li> </ul>	<p><b>From previous years: Flipgrid blogging, Book Creator, Photo Editing, Filmmaking, Presenting Information, Sound Production, Word Processing</b></p> <p><b>Creating an Online Blog</b></p> <ul style="list-style-type: none"> <li>Can identify the main sections of a website (header, footer, menu, hyperlinks etc.)</li> <li>Considers colours and fonts for their site in accordance with accessibility and readability;</li> <li>Creates an appropriate structure for their website, and can represent this in a flow chart;</li> <li>Creates an appropriate layout, and can include images (understanding copyright), embedded videos, text and hyperlinks;</li> <li>Understands that websites are created using HTML code;</li> <li>Can create content for a specific audience.</li> </ul>	<p><b>Search Engines</b></p> <ul style="list-style-type: none"> <li>Can use symbols in searches (+, "", .., site: -, ~) to find specific information in a search engine;</li> <li>Understands that there are different search engines for different needs (Wolfram Alpha, Google, Image reverse search etc.);</li> <li>Understands how search results are collated and ranked.</li> </ul>
WA Yellow=new or updated	Can explain how and why we respect copyright and fair use rules when using content created by others	Can use procedures to simplify common tasks within a more complex program that also contains selection and variables.	Can create a database to collate data on a given subject and can use it to find answers to given questions.	Can include a range of curated and self-made content in a blog, considering layout, style and purpose.	Can use clear terms in a search engine in order to refine their results.
GD		Can use their understanding of	Is able to use an existing	Evaluates and improves the	Is able to independently use

		selection, repetition and procedures to create their own program independently.	database to find patterns and trends in data and links this to their learning in other subjects	layout and structure of their site to ensure ease of access and clarity.	symbols in searches in order to refine search results.
Software/Equipment		J2E Code - Complex/LOGO	J2E Data - Database J2E Code - Microbit Microbits Gapminder	Google Sites	



Year 6

Area	E-Safety	Programming	Data	Multimedia	Technology in our lives
Units/Coverage	<p><b>Switched On Online Safety - Year 6</b></p> <ul style="list-style-type: none"> <li>Review our online safety rules;</li> <li>Understand the need for age restrictions on certain websites;</li> <li>Respect the personal information and privacy of others;</li> <li>Use our e-safety skills to resolve unfamiliar situations;</li> <li>Create and deliver advice on safe online gaming.</li> </ul>	<p><b>Introduction to Text Based Coding</b></p> <ul style="list-style-type: none"> <li>Revisit coding concepts taught so far using Rapid Router;</li> <li>Revisit text based coding concepts covered so far, including logo and HTML;</li> <li>Introduce text based coding using premade examples, looking for patterns between Scratch codes and python codes;</li> <li>Use digital playground and Code Combat to introduce text based coding;</li> <li>Use the Python language to create an Ascii Art based unit - see attached plan;</li> <li>Use the Python language to create a rock/paper/scissors game;</li> <li>Adapt the above to create their own selection based game (lucky 8 ball, coin toss, person chooser).</li> </ul>	<p><b>Using Spreadsheets</b></p> <ul style="list-style-type: none"> <li>Can identify grid references on a spreadsheet;</li> <li>Can use spreadsheet software to complete simple calculations;</li> <li>Can use more complex formulas (sum, max, min, count and average) to interpret data;</li> <li>Can use spreadsheet software to create appropriate graphs and charts to visualise data.</li> </ul>	<p><b>From previous years: Flipgrid blogging, Book Creator, Photo Editing, Filmmaking, Presenting Information, Sound Production, Word Processing, Blogging</b></p> <p><b>Desktop Publishing</b></p> <ul style="list-style-type: none"> <li>Can plan a poster or visual text including content that considers the needs of the audience;</li> <li>Creates visual texts that contain appropriate colours and images (considering copyright and fair use);</li> <li>Plans and creates layouts using word boxes, image placeholders, shapes and tables;</li> <li>Evaluates and improves their work.</li> </ul>	<p><b>How the Internet Works</b></p> <ul style="list-style-type: none"> <li>Understands the technology required for a local area network (hub, access point, server) and why each part is needed.</li> </ul> <p><b>Thinking Like a Computer</b></p> <ul style="list-style-type: none"> <li>Understands how computers use logic to organise information (random, serial and binary searches)</li> <li>Understands that computers use binary numbers to store information, and links this to their understanding of place value.</li> </ul>
WA Yellow=new or updated	Is able to apply their understanding of e-safety to a range of situations, including online gaming, social media and finding information from online sources	Can adapt and personalise existing text based programs.  Shows resilience to find and fix bugs in their programs.	Can complete simple calculations (+, -, x, /) using a spreadsheet.	Can use a desktop publishing program to create their own visual texts, including both self-made and curated content (considering copyright and fair use rules).	Can identify and describe the purpose of infrastructure hardware around their home or school.
GD		Compares text based coding to their understanding of block based coding.	Can use more complex statements within spreadsheets (sum, max, min, count and average) and can suggest where these could be used.	Evaluates existing texts in terms of readability, effectiveness and layout, and uses ideas from this in their own work.	
Software		Digital Playground	J2E Spreadsheet/Google Sheets	J2E5/Microsoft Publisher	

e/Equipment		Code Combat Code.org Codeclub resources Trinket.io Rapid Router		Canva	
-------------	--	---	--	-------	--

# The Computational Thinkers

The infographic is titled "The Computational Thinkers" in large red font. It features two central cartoon characters: a girl with dark skin and long black hair, and a boy with light skin and orange hair. They are standing in front of a globe. The girl is wearing a green dress with a white star and yellow shoes. The boy is wearing a green shirt, red pants, and brown shoes, and is holding a blue and white soccer ball. The background is a light blue grid. The infographic is divided into two main sections: "concepts" on the left and "approaches" on the right. Each section has a header in a colored box (green for concepts, dark green for approaches). The "concepts" section lists six items with icons: Logic (lightbulb), Evaluation (scales), Algorithms (tablet), Patterns (dots), Decomposition (red flower), and Abstraction (sweeping). The "approaches" section lists six items with icons: Tinkering (blocks), Creating (palette), Debugging (sieve), Persevering (mountain), and Collaborating (puzzle pieces).

## concepts

- Logic**  
Predicting & analysing
- Evaluation**  
Making judgements
- Algorithms**  
Making steps & rules
- Patterns**  
Spotting & using similarities
- Decomposition**  
Breaking down into parts
- Abstraction**  
Removing unnecessary detail

## approaches

- Tinkering**  
Changing things to see what happens
- Creating**  
Designing & making
- Debugging**  
Finding & fixing errors
- Persevering**  
Keeping going
- Collaborating**  
Working together

*I don't just accept the first solution*

*I look for a range of solutions to the same problem*

*I recognise there is more than one way to solve/describe a problem*

Handles Ambiguity

Open Ended Problem Solver

*I look for how a project can be extended*

*I can evaluate my solutions against a set criteria*

*I can break complex problems into parts*

*I can design criteria to evaluate my creations*



Evaluates

Computing Problem Solver



Copes with Complexity

*I can discover/concentrate on the most important part of a problem*

*I can contribute useful ideas to a partner or group*

*I can identify patterns in problems and solutions*

*I can encourage others to share their ideas*



Communicates



Adapts

*I can adapt existing ideas to solve new problems*

*I lead using all the people talent in my group*

*I can develop, test and debug until a product is refined*

*I learn from setbacks and don't let them put me off*



Perseveres

Investigates



*I make predictions about what will happen*

*I can persevere even if the solution is not obvious*

*I repeatedly experiment through predicting, making, testing & debugging*

Resources:

Code It - <http://code-it.co.uk/>

Recommended Software/Websites