







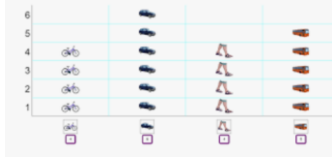

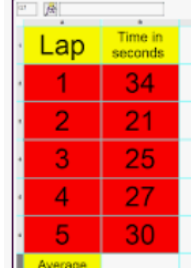










Computing	Nursery	Reception	KS1 Milestones		Lower KS2 Milestones		Upper KS2 Milestones		Lower KS3 milestones
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<p>Computer Science</p> <p>Knowing how to...</p>	<p>Use cause and effect toys (push/ pull/ wind up) etc can move as a result of an action. Use a codapillar with adult support.</p> 	<p>Navigate a route with simple instructions using a computing device.</p> 	<p>•Create simple programs. Use an algorithm to solve a problem or achieve an objective. Use an algorithm to navigate a route with a physical piece of technology (ie a Beebot/ Robot mouse)</p>	<p>Write an algorithm, program a Beebot and debug an algorithm and program.</p> <ul style="list-style-type: none"> • Use logical reasoning to predict the behaviour of simple program. • Debug simple programs 	<p>• Write programs that accomplish specific goals</p> <ul style="list-style-type: none"> • Use sequence in programs • Work with various forms of input and output <p>Write a sequence of instructions in a program including inputs and outputs. Identify an error within a program that prevents it following the desired algorithm and then fix it.</p>  <p>2Code (Chimp)</p>	<p>• Design programs that accomplish specific goals</p> <ul style="list-style-type: none"> • Debug programs that accomplish specific goals Use repetition in programs • Use logical reasoning to detect and correct errors in programs • Appreciate how search results are selected. <p>Design and write code with control (thinking of the required task and how to accomplish this in code - computational thinking) using coding structures for selection and repetition. I.e. considering shortcuts or purpose and control.</p>  <p>2Code (Gibbon)</p>	<p>• Solve problems by decomposing them into smaller parts</p> <ul style="list-style-type: none"> • Use selection in programs • Control or simulate physical systems • Use logical reasoning to explain how some simple algorithms work • Appreciate how search results are ranked <p>Test and debug their programs using logical methods to identify the approximate cause of any bug. May need some support identifying the specific line of code.</p>  <p>2Code (Gorilla)</p>	<ul style="list-style-type: none"> • Use logical reasoning to detect and correct errors in algorithms • Work with variables • Understand computer networks including the internet • Use logical reasoning to detect and correct errors in algorithms • Work with variables <p>Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task. Children test and debug their program as they go.</p> 	<p>Designs solutions (algorithms) that use repetition and two-way selection i.e. if, then and else. Use diagrams to express solutions. Use logical reasoning to predict outputs, showing an awareness of inputs. Knows that digital computers use binary to represent all data.</p>
<p>Computer Science</p> <p>Substantive Knowledge</p> <p>Knowing that...</p>	<p>Cause & effect toys have simple mechanisms such as remotes, winders, , remote control etc</p>	<ul style="list-style-type: none"> • Know that a programmable toy (or robot*) can be made to move by inputting information. It is then stored as a program. 	<ul style="list-style-type: none"> • Understand what algorithms are. Know that an algorithm is a set of step-by-step instructions to solve a problem or complete a task. 	<ul style="list-style-type: none"> • Know that algorithms are implemented as programs on digital devices which execute by following precise and unambiguous instructions <p>Know that programs are sequences of code. These are precise instructions (or a set of rules) that can be understood and followed by a computer or programmable toy.</p> <ul style="list-style-type: none"> • Know that computer 	<ul style="list-style-type: none"> • Know that a sprites are on-screen characters that can be given their own sequence of instructions to produce outputs. • Know that a single instruction in a computer program is a command. • Know that debug\ Debugging Fixing code that has errors so that the code will run the way it was designed. 	<ul style="list-style-type: none"> • Understand how computer networks can provide multiple services, such as the world wide web. • Know that 'if/then/else' and 'sensing' blocks (like 'touching') can be used to allow the player's sprite to interact with other elements in a game. • Know that a group of commands can be called a block • An algorithm is a set of instructions, coding is when we use computational thinking 	<ul style="list-style-type: none"> • Know that the way that objects change when programmed to do so. For example, move or change a property. • Know that a diagram that uses specifically shaped, labelled boxes and arrows to represent an algorithm as a diagram. 	<ul style="list-style-type: none"> • Understand computer networks including the internet • Know that function A block or sequence of code that you can access when you need it, so you don't have to rewrite the code repeatedly. Instead, you simply call the function each time you want it. • Know that an input Information going into the computer. • Know that an output Information that comes out of the computer e.g., sound. prompt, alert or print to screen. 	

				programmers often make mistakes, which they call bugs, and fixing these mistakes (debugging) is a big part of their work		to 'code' (this may include tinkering, creating, debugging, looking for shortcuts etc.			
Computer Science Vocabulary	Push, pull, wind, press	recipe, sequence	algorithm, code, debugging, instructions, program,	command, image, object , programming	action, degrees, design, event, flowchart, input, output, sprite	block, coordinates, sensing, if/ else, elements, repeat, sequence, value	simplify, diagram	simulation, function,	
Information Technology skills Knowing how to...	Operate simple IT equipment :ie. press parts/ buttons, lift flaps etc	Use simple visual navigation to find their way around Mini Mash 	<ul style="list-style-type: none"> Use technology purposefully to create, store and retrieve digital content <p>Open and save a file using : file, new, save & open. Sort, collate, edit and store simple digital content ie word processing or data analysis documents</p> 	<ul style="list-style-type: none"> Use technology purposefully to organise digital content Use technology purposefully to manipulate digital content <p>Children can effectively retrieve relevant, purposeful digital content using a search engine and open apps to access software. Ie opening an app on an IPAD and searching for this.</p> 	<ul style="list-style-type: none"> Use a variety of software to accomplish given goals Collect information Design and create content Present information <p>Children can collect, analyse, evaluate and present data and information using a selection of software</p> 	<ul style="list-style-type: none"> Select a variety of software to accomplish given goals Select, use and combine internet services Collect data Present data <p>Children make informed software choices when presenting information and data ie choosing which pictogram is most suitable/ choosing graph types</p>	<ul style="list-style-type: none"> Combine a variety of software to accomplish given goals Select use and combine software on a range of digital devices Use search technologies effectively Analyse information Evaluate information <p>Use several ways of sharing digital content i.e. to insert other median into Microsoft Word.</p> 	<ul style="list-style-type: none"> Design and create systems Analyse data Evaluate data <p>Children make clear connections to the audience when designing and creating digital content.</p> 	Understands the difference between the internet and internet service e.g. world wide web Makes judgements about digital content when evaluating and repurposing it for a given audience. Understands the potential of information technology for collaboration when computers are networked. Recognises and understands the function of the main internal parts of basic computer architecture.
Information Technology skills Substantive Knowledge Knowing that...	<ul style="list-style-type: none"> Know that touchscreens can record actions/ patterns 	<ul style="list-style-type: none"> Know that you can open up IPAD apps by clicking on them Know that you can select, control and move item on the IPAD. 	<ul style="list-style-type: none"> Use technology safely and keep personal information private Know that you need a user name and password to log into some pieces of software. Know that the undo tool can be used to correct mistakes. Know that the spacebar will put a space between words 	<ul style="list-style-type: none"> Know that a search engine is a program to help you find web pages on the Internet. Know that using the caps lock key is one way to create a capital letter Know that a using the enter button can move text onto the next line 	<ul style="list-style-type: none"> Know that a URL is a web page address (location) for a particular page on a website. Know that animation is the process of adding movement to still objects. Know that an object that can be inserted into a piece of work in a program that allows the user to input text 	<ul style="list-style-type: none"> Know that a digital footprint is the information about a person that exists on the Internet as a result of their online activity. Know that the shortcut for copy and paste is Ctl C & Ctl V Know how to change font size and colour Know that a change printing features. 	<ul style="list-style-type: none"> Know how to use the snipping tool. Know how to insert a picture or a video into text. Know how to insert a table Know how to merge cells together 	<ul style="list-style-type: none"> Know how to create charts and graphs and editing these features. Know how to use the formula bar for calculations (creating data) Know how to use the SUM function 	

					and this is called a text box) <ul style="list-style-type: none"> Know that a transition will moves slides from one to the next. Know that a using the shift button or CAPs lock will create a capital letter 				
Information Technology skills Vocabulary	computer, machine, typing	IPad, app, mouse, computer, machine, typing	groups, sort, undo, pictogram,	avatar, font, text, textbox, spacebar, keys, caps lock	Animation, bar graph, cell, data, pie chart, data, database, shift button, transition, URL, windows	copy, column, cell, formula, format, paste, row, snip, snipping tool, email, Teams	account, merge, screenshot	QR Code, network, selfie, formula wizard, statistics,	
Digital Literacy Knowing how to...	Interact with age appropriate software	Stay safe online – learning through stories 	Use technology safely Keep personal information Private Keep information about themselves private when online 	Recognise common uses of information technology beyond school Use technology respectfully Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies Children know the implications of inappropriate online searches	Use technology responsibly Identify a range of ways to report concerns about contact Children demonstrate the importance of having a secure password and not sharing this with anyone else. 	Identify a range of ways to report concerns about content Recognise acceptable / unacceptable behaviour Children know a range of ways of reporting inappropriate content and contact. 	Be discerning in evaluating digital content Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others. 	They recognise the value in preserving their privacy when online for their own and other people's safety. 	Recognises what is acceptable and unacceptable behaviour when using technologies and online services. Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.
Digital Literacy Substantive Knowledge Knowing that...	<ul style="list-style-type: none"> Some computing systems should only be used with an adult's help. 	<ul style="list-style-type: none"> Know that it is important to keep personal information private 	<ul style="list-style-type: none"> Know that your password shouldn't be shared with other people 	<ul style="list-style-type: none"> Know that you should turn the screen off, close the laptop lid or turn over the iPad if you see an image you are concerned about. You should tell a trusted adult straight away. Know how technology is used outside of the classroom. 	<ul style="list-style-type: none"> Know that a good password should not be easy to guess i.e. use symbols, numbers and different cases OR four random words Know to report any concerns to a trusted adult AND that they can also report in other ways (website/ CEOP) but may need 	<p>Understand the opportunities computer networks offer for communication</p> <ul style="list-style-type: none"> Know that you should follow the SMART rules to stay safe online Know that inappropriate content or contact can be reported i.e. CEOP or school website link after 	<ul style="list-style-type: none"> Know that not everything that you read online is true Know that PEGI rating show the age that digital content is suitable for and the type of content that it contains 	<p>Understand the opportunities computer networks offer for collaboration</p> <ul style="list-style-type: none"> Know what reliable sources look like. Know what cyberbullying is, what it looks like and the actions you can take if you or someone you know is being bullied online Know how computing networks work and the 	<ul style="list-style-type: none"> Know that that too much screen time is unhealthy. Know that that your online self image can reflect how you feel about yourself positively and negatively.

					support from an adult to do so.	you have told a trusted adult		benefits in terms of linking with others.	
Digital Literacy Vocabulary	button, typing	button, icon, home screen, typing	alert:, avatar, device, file name, filter, login, log out, password, private, search, textbox, tool bar,	internet: password, personal information, trusted adult	appropriate, blog, digital footprint, inappropriate, behaviour, permission, reliable source, verify	cookies, copyright, CEOP, phishing, report, SMART rules, spam	encrypt, malware, PEGI rating, plagiarism, spoof, validity	location sharing, cyber bullying	

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