

Information Technology	How technology is used effectively within the real world.				
	What is technology?	Networks	Internet and the WWW (E-Safety)	Search technologies	Data storage (local and cloud)
Foundation 1	Children will recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.				
Foundation 2					
Year 1	<p>Understand that technology can be used for communication and begin to consider the different methods of communication (e.g. emails over the internet or text messages through a phone signal).</p> <p>Recognise ways that technology (e.g. computers, consoles, handheld devices) is used in the home and community e.g. taking photos, shopping, entertainment etc.</p>		<p>Use links provided links to find information on the internet.</p> <p>Identify different ways in which the internet can be used.</p> <p>What does it mean to be safe?            Know what is meant by “personal information” and know that it is important to keep this private and not share it online.            Know not to include a name, birthday or address in a username or password.            Identify safe adults that can help in a bad situation.</p>	<p>Know different search engines.</p> <p>Know appropriate vocabulary to search for a broad topic.</p>	<p>Know how to retrieve saved data.</p> <p>Know how to save data.</p>
Year 2	<p>Learn the <b>basic</b> terminology to describe the components of a <b>computer</b> (mouse, screen, keyboard, hard drive, webcam).</p> <p>Learn the <b>basic</b> terminology to describe</p>		<p>Recognise age-appropriate websites.</p> <p>Recognise different ways in which the internet can be accessed (e.g. different devices and different web browsers).</p>	<p>Know vocabulary that can be used to make a search more specific.</p>	<p>Know how to create a folder in local and cloud storage.</p> <p>Know how to save data within a folder.</p>

	<p>the components of a <b>handheld device</b>.</p> <p>Look at the similarities and differences between handheld devices and computers. Consider the purpose of each one.</p>		<p>Know the difference between good and bad behaviour online.</p> <p>Identify how to create a strong, secure password. Know how to log out of a website and why this is important.</p>		
<b>Year 3</b>		<p>Identify which components make up a network, how these are linked together.</p> <p>Identify that networks can be wired or wireless.</p> <p>Identify the difference between a network and the internet.</p>	<p>Know what is meant by “responsible use” of the internet.</p> <p>Identify appropriate and inappropriate behaviour and be able to reflect on their own online usage.</p> <p>Identify key rules that can be used when using social media/being online (e.g. games).</p> <p>Recognise what privacy controls are and why this is important.</p> <p>Know what to do if a stranger interacts with you.</p>	<p>Be able to add websites to a favourites list and know how to access these repeatedly.</p> <p>Use search engines to find and use a website with appropriate content.</p> <p>Use website navigation effectively.</p>	
<b>Year 4</b>		<p>Recap how a network works from Y3.</p>	<p>Discuss digital footprint and know about the impact this can have on future prospects.</p>	<p>Use appropriate strategies to improve the quality of a search (e.g. beginning to use the advanced searches).</p>	<p>Identify how data is stored (local and cloud).</p> <p>Know what is meant by “the cloud”.</p>

				Demonstrate an understanding of how to search for copyright free content.	Know what is meant by "local storage".  Identify how the cloud can be used to backup data.
<b>Year 5</b>		<b>SIMSNET challenge (KCOM).</b>	<p>Know what antivirus software is and how this can keep you safe online.</p> <p>Know how to report online concerns (e.g. report to CEOP, Childline, report to the online provider, report to an adult).</p> <p>Consider different scenarios linking to online safety.</p>	<p>Demonstrate an awareness of how search results are ranked – e.g. adverts first.</p> <p>Understand that search engines identify key words within websites to draw results.</p> <p>Link understanding of antivirus software to how this protects search results.</p>	
<b>Year 6</b>			<p>Know what is meant by fraudulent and know how this can be prevented.</p> <p>Know what is meant by phishing and how this can be prevented.</p> <p><b>Natwest bank scam case study.</b></p>	<p>Evaluate the reliability of search results and websites.</p> <p>Be able to cross-check information from different searches and websites.</p> <p>Justify why they have used a particular search engine and why they have used those words.</p>	

Digital Literacy	Using technology for effect to create and manipulate multimedia, sounds, imagery and documents.				
	Typing Skills (to be applied to a range of devices)	Word Processing Software	Presentation	Spreadsheets, forms and databases	Multimedia (text, images, sound), Desktop Publishing, vlogs and podcasts.
Foundation 1	<p>Practise typing letters onto a computer to form simple words.</p> <p>Know that the space bar creates a space between words.</p>				<p>Know what a picture is.</p> <p>Know what a video is.</p> <p>Know what is meant by the word "sound".</p>
Foundation 2	<p>Know that the enter buttons goes to a new line.</p> <p>Know how to sit correctly at a computer and know to use two hands to type on the keyboard.</p>				<p>Know what text is.</p> <p>Be able to play sound or videos by pressing the play button.</p> <p>Be able to stop sound or videos by pressing the pause button.</p> <p>Use a painting program on a tablet or computer to draw a picture.</p> <p>Know that cameras take pictures and be able to use one to do so.</p> <p>Know how to use multimedia equipment to capture still and moving images.</p>

					Know ways of making and listening to sounds using simple programs and devices.
<b>Year 1</b>	<p>Know to use the CapsLock button and the shift button to create a capital letter.</p> <p>Know to put a space after using the full stop button.</p> <p>Know which keys to press in order to type basic punctuation. (full stop, exclamation and question mark).</p> <p>Know to use the backspace button to delete letters.</p> <p>Begin to type full basic sentences that are punctuated correctly using both hands. This should be with some accuracy.</p>	<p>Know the symbols for bold, italics and underline and be able to select text in order to change its format.</p> <p>Know how to increase the size of text.</p> <p>Know that the undo button can be used to rectify mistakes.</p>		<p>Know how to sort items into sets or simple tables.</p> <p>Know how to draw a simple graph, e.g. pictogram / block graph.</p> <p>Be able explain what the graph shows.</p>	<p>Know that "multimedia" refers to text, images and sound.</p> <p>Know that videos are a type of moving image.</p> <p>Know that multimedia can be manipulated to look different (discuss size, colour, font style).</p> <p>Be able to use a camera to take a video with sound.</p> <p>Be able to use a microphone to record sound.</p> <p>Be able to use a range of software on a tablet/iPad to add images to.</p> <p>Be able to use simple software (e.g. PicCollage) to create simple posters using images and sound.</p>

					<p>Know how to paint with different colours using undo or eraser to correct mistakes.</p> <p>Know how to use different tools such as brush, pen, line, shape and fill.</p> <p>Know how to use a digital still camera to take a picture and frame the image and keep the camera still.</p> <p>Know how to record an audio recording and play it back.</p>
<b>Year 2</b>	<p>Continue to type correctly demarcated sentences with increasing speed and accuracy using both hands.</p> <p>Know how to add a comma into a sentence.</p> <p>Know how to use the @ and # symbols and where these would be used.</p>	<p>Know how to change the colour and font of text.</p> <p>Know how to add a picture from the internet and from storage and manipulate its size.</p>		<p>Know how to read and use a simple database to find information.</p> <p>Know how to add basic information to a pre made database.</p> <p>To be able collect and record data purposefully.</p> <p>To know how to present data in a bar chart.</p> <p>To be able answer and ask questions about bar chart.</p>	<p>Use simple software to create posters with images and sound that are then manipulated (changing size, colour etc).</p> <p>Know how to add images, text, sound and videos into apps like Book Creator or Explain Everything in order to create purposeful digital content.</p> <p>Know how to insert content created in one</p>

					<p>app (e.g. from painting software) into another (e.g. Book Creator).</p> <p>Be able to discuss the quality of images and make decisions e.g. delete a blurred image.</p> <p>Know how to use a photograph within a document.</p> <p>Know how to combine a set of photographs to tell a story.</p> <p>Know how to capture video and how to frame the image and move the camera carefully.</p> <p>Know how to play back a video recording and store it.</p>
<b>Year 3</b>	<p>Continue to type correctly demarcated sentences with increasing speed and accuracy using both hands.</p> <p>Know how to add inverted commas,</p>	<p>Know appropriate styles of text for a document.</p> <p>Know how to align text on the page.</p> <p>Know how to add columns for text.</p>	<p>Know that presentation software is used to present ideas and information to other people.</p> <p>Know that Microsoft PowerPoint, Google Slides and Sheets are all examples of presentation software and</p>	<p>Know what a branching database is.</p> <p>Know how to sort and organise items in a branching database.</p> <p>Know how to filter and sort records in a database to answer questions.</p>	<p>Know how to use the print screen function to capture an image and select and use a certain area of an image from a video, using the zoom function.</p>

	apostrophes and brackets.	Know how to add bullet points.	<p>that they work in a similar way.</p> <p>Know that, as a minimum, presentations should consist of a title slide, one or more content slides and an ending slide.</p> <p>Know how to input text onto a slide and how to change its size, colour and font.</p> <p>Know that titles should appear bigger than the rest of the text as they introduce the slide.</p> <p>Know how to insert a new slide to allow for a title and content to be added.</p> <p>Know how to change the colour of the background.</p> <p>Know how to add a picture to the slide (link with Y2 Word Processing understanding) directly from the web, from a saved file and from the clip board (copy and paste).</p>		<p>Know how to download the video files from the device.</p> <p>Know how to combine video clips to create a video.</p> <p>Know how to add simple titles and credits</p> <p>Know how to record an audio recording with clarity.</p> <p>Know how to download and save a recording.</p>
<b>Year 4</b>	Continue to recap taught skills.	Know how to indent a paragraph.	Know how to reposition text boxes that appear on the slide and know how to change their size.	Know how to add text and numbers to spreadsheet cells.	Know how to group, copy and move shapes within a picture.

	<p>Encourage children to type with both hands at an increasing speed with more accuracy.</p> <p>Begin to introduce keyboard shortcuts to improve typing and computer efficiency.</p> <p>Encourage typing across a range of subject areas to provide regular opportunities to improve skills.</p>	<p>Know how to add a text box and manipulate this on the page.</p> <p>Know how to crop a picture and add borders.</p> <p>Know how to use spell check.</p> <p>Know how to add a table.</p>	<p>Know how to add outlines to text boxes to make them stand out.</p> <p>Know how to crop a picture and add borders.</p> <p>Know how to add shapes and how to manipulate their colour and size.</p> <p>Know how to add 'shape effects' to a picture.</p> <p>Know how to add slide transitions and know their purpose.</p> <p>Know that, for an effective presentation, transitions should be consistent throughout the presentation.</p> <p>Know how to add animations to an object on a slide.</p> <p>Know what is meant by entrance, emphasis, exit and motion path transitions and how to use each for effect.</p> <p>Know how to use the "arrange" feature to layer objects on the slide.</p>	<p>Know how to add simple formulae: +-*/ Know how to change the appearance of cells, e.g. size, borders and colours.</p> <p>Know how to copy and paste formulae within a spreadsheet.</p> <p>Know how to present data in a graph, selecting the most appropriate layout.</p> <p>To be able to answer questions relating to graphs, and pose own questions.</p> <p>To be able to place a graph in a document / presentation to share findings with others.</p>	<p>Know how to order shapes / images by sending them to the back / front.</p> <p>Know how to crop and / or rotate an image where needed.</p> <p>Know how to adjust the colours on a photo.</p> <p>To be able to plan an animation using a storyboard for a purpose.</p> <p>Know how to shoot frames to combine into an animation.</p> <p>Know how to edit an animation to improve it / make it more realistic.</p> <p>Know how to put sounds over an animation.</p> <p>Know how to add titles and photos into an animation.</p>
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<b>Year 5</b>		<p>Know how to add a caption to a picture.</p> <p>Know how to add a chart.</p> <p>Know how to use the Print Screen button and the Screen Clipping function.</p>	<p>Know how to use Microsoft PowerPoint's "Design ideas" function effectively.</p> <p>Know how to use and create a theme in order to keep colours and fonts consistent.</p> <p>Know how to add tables and charts that can link directly to spreadsheet data.</p> <p>Know how to add pre-recorded sounds onto a slide.</p> <p>Know how to use the delay feature for a sound and to link it with the animations.</p> <p>Know how to delay an animation.</p> <p>Know how to set an animation to happen on click, with previous or after previous.</p> <p>Know how to insert a video from files onto a slide.</p> <p>Know how to insert a video from YouTube/the web onto a slide.</p>	<p>Know how to interrogate a database using more complex searches.</p> <p>Know how to design and create a database.</p> <p>Know how to use information in a database to create a graph in order to answer questions.</p> <p>Know how to use simple functions, e.g. SUM, AVERAGE, to solve problems.</p> <p>Know how to use brackets to organise formulae.</p> <p>Know how to change data in a formula to answer 'What if?' questions.</p> <p>Know how to change the format of cells appropriately. (recap)</p> <p>Know how to create a graph using spreadsheet data (recap)</p>	<p>Know how to add and combine shapes to design a 3D model.</p> <p>Know how to add detail to my 3D model.</p> <p>Know how to improve a photo with editing tools e.g. blur, filters, add border.</p> <p>Know how to edit the video; trimming and re-ordering clips. Know how to add a voice-over and / or background music to a video.</p> <p>Know how to add titles and credits to a video.</p> <p>Know how to create an audio recording and add it to other software.</p>
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<p style="text-align: center;"><b>Year 6</b></p>		<p>Know how to use the SmartArt function to add diagrams.</p> <p>Know how to include a header, footer and a page number.</p> <p>Know how to add a hyperlink.</p>	<p>Know how to use the SmartArt function to add diagrams.</p> <p>Know how to add hyperlinks to external websites and to slides within the presentation to make the presentation interactive.</p> <p>Know how to add an interactive contents page using in-document hyperlinks.</p> <p>Know how to add GIFs onto a slide.</p> <p>Know how to set a transparent colour or remove the background from a picture using picture formatting tools.</p> <p>Know how to set the opacity of a picture and use this for effect.</p> <p>Know how to use the 'screen recording' feature to insert a recording of the screen onto a slide.</p> <p>Know how to use the 'page numbers' function to</p>	<p>To be able to design and create a spreadsheet for a specific purpose, incorporating different features of design and function.</p>	<p>Know how to take photos and use them for a given purpose.</p> <p>To be able to plan and create an animation for a given purpose.</p> <p>Know how to edit an animation to improve it / make it more realistic.</p> <p>Know how to combine an animation with other software.</p> <p>Know how to select and use appropriate multimedia tools, and combine these for a given purpose with confidence.</p>
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			<p>automatically add page numbers.</p> <p>Know that effective presentations have thought-provoking pictures on screen and minimal text.</p> <p>Know how to use the “presentation notes” feature to add speaking notes for use when presenting the presentation.</p> <p>Know how to use “Presenter view” when presenting the presentation so that the upcoming slide and notes can be viewed.</p>		
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Computer Science	<b>Gaining an insight into computational systems including how they are designed and programmed.  Teaching children about computational thinking in order to solve problems and design systems.</b>			
	Algorithms (including implementation, executing instructions and unplugged learning)	Logical Reasoning and Debugging Programs	Decomposition	Creating Programs (Controlling/simulating physical systems including input/output, sequence, selection and repetition)
<b>Foundation 1</b>	Know how to follow simple instructions.	Know what should happen as a result of cause and effect.	Know that tasks can be broken down into smaller occurrences (e.g. putting your shoes on: find your shoes, put your feet in, tie your laces)	Know how to use basic directional and instructional language to program a simple robotic toy to execute a short sequence.
<b>Foundation 2</b>	<p>Know that certain things have to be done in a particular order (e.g. putting your socks on before your shoes).</p> <p>Know how to verbally give instructions using imperative language.</p> <p>Be able to explore the commands needed to control a range of electronic toys.</p> <p>Know how to give instructions to robotic toys (e.g. know what to press to move a Bee-Bot forwards).</p>	<p>Know when something has not happened as expected (e.g. I pushed the button but it did not switch on)</p> <p>Begin to consider ways that this unexpected occurrence can be fixed (e.g. what might be wrong if the toy did not switch on when you pressed the button?)</p>	<p>Be aware of everyday devices that sense data e.g. bar codes, metal detectors, sound recorders, light sensors, automatic doors, thermometers.</p> <p>Be able to explore toys that simulate control via role play. (traffic lights, scanner, microwave, cash tills.)</p>	<p>Know that an output will happen as a result of an input (when I press the button, the Bee-Bot will move forwards).</p>
<b>Year 1</b>	<p>Know that an algorithm is a series of instructions and be able to describe and explain basic algorithms.</p> <p>Know that algorithms must execute in a particular order.</p>	<p>Begin to predict what a program will do and verbalise how it is expected to work.</p> <p>Begin to propose suggestions for how a sequence not working as expected can be fixed (e.g. the toy needs to turn left instead of right).</p>	<p>Begin to break down larger scale tasks into smaller steps, thinking carefully about the requirements of each step.</p>	<p>Know how to programme a robotic toy for a specific purpose and know the process of each command.</p> <p>Know how to combine commands for a specific purpose.</p>

	<p>Know examples of unplugged algorithms (making toast, putting socks on).</p> <p>Be able to order and sequence simple and familiar algorithms and use instructional language appropriately.</p> <p>Begin to mark down the sequences of an algorithm using basic instructional and directional language (e.g. move forward 2, turn 90 degrees, move forward 1).</p>	<p>Begin to implement proposed suggestions to the sequence/program and again check that it is working as expected.</p>		<p>Linking with knowledge of algorithms, write a simple sequence to program a robotic toy from one position to another (e.g. around a maze)</p>
<b>Year 2</b>	<p>Know that instructions within an algorithm need to be precise and unambiguous in order to execute correctly.</p> <p>Know that algorithms are usually written in a language that humans understand easily.</p> <p>Know how to plan a sequenced algorithm to achieve a specific goal using words.</p> <p>Know how to read and decode a simple algorithm.</p>	<p>Predict with more accuracy what a program will do and link this with the decomposed elements.</p> <p>Begin to identify more specifically where the errors in the program are by thinking about which elements are/are not working as expected.</p> <p>Propose suggestions for how to debug the program and retest.</p>	<p>Observe a working program (e.g. watch the sequence of a robotic toy or link to unplugged learning) and begin to decompose elements as a class (e.g. it needs to take 2 steps forward).</p> <p>Test and correct decomposition ideas by writing a program that they have decomposed and debugging errors as it goes along.</p> <p>Begin to use the list of decomposed elements to support the debugging of a program.</p>	<p>Know the likeness between an algorithm (sequence of steps in human language) and a program (written code) but recognise that they are not the same thing.</p> <p>Know that a program aims to use code to provide an algorithm to a computer in a computing language.</p> <p>Know that a program can be written to predict an outcome (a simulation) and know why simulations are useful.</p>
<b>Year 3</b>	<p>Recognise that there are often multiple algorithms that can be used to achieve the same outcome.</p>	<p>Identify how each element of a simple program should execute.</p> <p>Know when a program is working as expected.</p>	<p>Observe a working computer program (simple sequence) and decompose its elements as a class.</p> <p>Observe a repeating program and identify what it is expected to do.</p>	<p>Know that, in computer code, sections of a program execute immediately after one another.</p> <p>Explore online simulations, explaining rules behind the</p>

	<p>Recognise that some algorithms may be better than others in accomplishing a specific goal.</p> <p>Identify when an algorithm is repeated and be able to use a repeating function within instructions.</p> <p>Know that repetition functions can help to make algorithms and programs more concise which can lead to fewer errors.</p> <p>Be able to use this to create a procedure (group of commands) to do a specific task, draw a specific shape.</p>	<p>Know when a program is not expected and know that this means it needs debugging.</p> <p>Know how to use decomposition to support the debugging process and identify specifically where the bug/error occurs.</p> <p>Identify reasons why this bug/error occurs and be able to debug simple sequential errors in a program.</p> <p>Know what would be expected from repetitional algorithms and programs.</p> <p>Identify errors within repetition and be able to debug errors with increasing independence.</p>	<p>Begin to write down the decomposed elements for a program in order to refer back to these later.</p>	<p>simulations and how they can be realistic / represent reality. Discuss how simulations can be used</p> <p>Know how to add a “wait” function into a program in order to add a delay (using scratch).</p> <p>Know how to execute particular sections of codes upon particular commands (e.g. when the space bar pressed or the mouse clicked).</p> <p>Be able to create a simple program using sequencing to accomplish a specific goal.</p> <p>Be able to create a simple program that uses repetition in order to accomplish a specific goal.</p> <p>Know the difference between a “forever loop” and a “repeat” program.</p>
<p><b>Year 4</b></p>	<p>Begin to introduce conditional selection functions within an algorithm e.g. if... then... or if... else...</p> <p>Begin to explore how to make an algorithm better (fewer instructions, more precise language).</p>	<p>Know what would be expected from conditional selection algorithms and programs.</p> <p>Identify errors within conditional selection and be able to debug errors with increasing independence.</p> <p>Know that the debugging process is important throughout the</p>	<p>Observe a program that uses conditional selection functions and anticipate what it is expected to do.</p> <p>Verbalise how an algorithm using conditional selection functions works and break down into each small step.</p>	<p>Know that when using programming software like Scratch, the element of code being executed at that time is highlighted. Use this to help with the debugging process to find errors.</p> <p>Be able to create a simple program using a range of conditional selection functions.</p>

		<p>programming process and not just at the end.</p> <p>Begin to suggest improvements to programs to make them better/more efficient.</p>		<p>Know that the “repeat until” function combines repetition with conditional selection and be able to use this to create a program that terminates when the conditions are met.</p>
<p><b>Year 5</b></p>	<p>In Years 5 and 6, children should be able to confidently use all previously taught algorithmic knowledge in order to plan and test algorithms. Algorithms should form the basis of planning programming and this knowledge and understanding should be tied into decomposition and debugging.</p>	<p>From decomposition, recognise how variables are expected to work and therefore be able to identify when they are not working appropriately.</p> <p>Propose possible bug fixes with variables.</p> <p>Identify the purpose of an input and recognise when this is/isn't working as expected. Suggest a range of potential fixes.</p> <p>Begin to divide up code and run specific sections of programs individually to allow for more accuracy in debugging.</p> <p>Propose a range of reasons for non-working outputs and propose suggestions for bug fixes.</p> <p>Be able to more confidently suggest improvements to existing programs to make them better/more efficient.</p>	<p>Be able to identify the role of variables within a program and explain how they are used by a program.</p> <p>Know that a variable stores information and can be a numerical or text value.</p> <p>Identify the role of varying inputs and outputs for a computer or digital device. (basic e.g. keyboard, mouse, switch etc.)</p>	<p>Be able to create a variable containing a text value within a program and use code to retrieve this stored later within the program (e.g. retrieve the player's name)</p> <p>Be able to create a variable that holds a number and know how to program this to be used within a game (e.g. if 'lives' = 0, end game)</p> <p>Be able to set a numerical variable to be increased/decreased throughout a program dependent on other conditions within the program.</p> <p>Be able to justify the use of one simple input over another (e.g. keyboard over a mouse).</p> <p>Be able to program a simple input to perform a simple output (e.g. turn on/off)</p>

<p style="text-align: center;"><b>Year 6</b></p>	<p>In Years 5 and 6, children should be able to confidently use all previously taught algorithmic knowledge in order to plan and test algorithms. Algorithms should form the basis of planning programming and this knowledge and understanding should be tied into decomposition and debugging.</p>	<p>Consider how sensors are expected to work and propose reasons why they may not be working appropriately.</p> <p>Propose suggestions to fix bugs related to sensors.</p> <p>Heavily use decomposition within debugging in order to divide a program and use more specific debugging skills. Propose a range of ways, some more efficient than others, that could help to debug the program.</p> <p>Be able to confidently and independently suggest improvements to existing programs and those created by the pupil to make them better/more efficient.</p>	<p>Identify how a sensor works as an input and break down the program into smaller steps.</p> <p>Identify a range of sensors (light/sound) and be able to explain what is required for these to work.</p> <p>Identify a range of more complex outputs and the steps required to make these work.</p> <p>Observe programs that simulate and control physical systems (these may link to the real world e.g. traffic light) in order to recreate their own.</p>	<p>Be able to program an input device to change the state of an output (e.g. change the colour/brightness of a light)</p> <p>Use varying inputs and outputs to simulate a physical system (e.g. recreate the solar system)</p> <p>Use varying inputs and outputs to control a physical system (e.g. control a crumble kit or robot)</p> <p>Use knowledge of programming and algorithms to plan, design, create, test and debug a fully functional game/app that uses justified inputs, outputs and variables. Children should be able to justify why they have chosen particular coding elements (e.g. a forever if loop rather than a forever loop).</p>
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