



# **Latimer Primary School**

## **Computing**

### **and**

## **Online Safety**

## **Curriculum**

**Developing Responsibility; Caring About Achievement**

# Computing and Online Safety at Latimer

## Computing and Online Safety Curriculum

At Latimer Primary School, our computing curriculum is designed to foster our children's understanding of digital literacy, information technology, and computer science. It exposes them to the vast array of opportunities that computing offers now and in the future and instils them to **'Take Responsibility'** in an increasingly digital world.

With the transition from the previous national curriculum subject of ICT to computing, our curriculum has shifted focus from office skills to technical innovation. By learning the fundamentals of computer science, programming, and creative media, our children are empowered to be active contributors, not just consumers, in our digital society.



Our computing curriculum draws on the best practices outlined by the STEM Learning Association and uses the **'Teach Computing'** programme as its basis.

Online safety is not just a part of our curriculum; it is ingrained in it. We use the **'Project Evolve'** resources, a bank of continually updated materials, to support the development of online safety. This builds upon our ethos of **'Developing Responsibility; Caring About Achievement'** and our **'Simple Truths'**, ensuring our children's safety in the digital world.

## Designing our Curriculum

At Latimer, children develop their computing knowledge from an early age. As our children enter our school in EYFS, they first experience concepts such as computer science through play and exploration using unplugged activities. They give directions to their friends, follow sequences of instructions and learn sequential language, which supports the development of computational thinking.

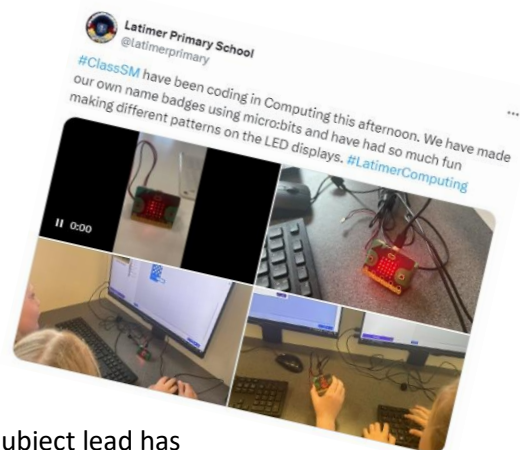
As children move into Key Stage 1, they begin to develop their understanding of the different concepts in computing, including:

- Networking and systems
- Creating Media
- Programming
- Data and Information

By the time our children leave us, they are ready to move into the secondary curriculum, build up their knowledge of algorithms and computational thinking, and have the confidence to use technology creatively for different purposes.

To ensure our curriculum suits the needs of all our children, our subject lead has adapted the Teach Computing Curriculum in small ways. The focus on digital writing has been moved into Year 2 to maximise the opportunities to develop children's writing composition, and spreadsheets have been moved into Year 4 to maximise links with the maths curriculum.

It is recognised that Online Safety is essential for all children so that they can mitigate the risks that technology brings. To accommodate this, some units of the Teach Computing Curriculum have been removed to provide the space needed to focus on Online Safety using the Project Evolve resources.



It is recognised that Primary teachers may not have computing as their specialism, and therefore, the resources provided by Teach Computing are utilised to provide a high level of expertise. These resources are carefully sequenced and well-matched to the National Curriculum.

Assessment opportunities are built into each lesson, and clear links are made to prior learning to ensure progression.

There are clear progression maps for each concept supporting substantive and disciplinary knowledge development.

Declarative knowledge (Knowledge that)	Procedural Knowledge (Knowledge How)
<ul style="list-style-type: none"> <li>• Children are taught the subject knowledge and vocabulary that surrounds the concepts of:</li> <li>• Computer Science</li> <li>• Information Technology</li> <li>• Digital Literacy.</li> <li>• The purpose and function of different programming approaches.</li> <li>• The principles of creating media effectively include creating an impactful PowerPoint presentation.</li> <li>• Features of unreliable content online</li> </ul>	<ul style="list-style-type: none"> <li>• How to build a sequence of instructions in programmes such as Scratch.</li> <li>• How to add objects to PowerPoints or Word.</li> <li>• The steps to keeping themselves safe online.</li> <li>• How to build simple computing networks using Microbits.</li> </ul>

## SEND

For children who may find traditional approaches to reading and writing challenging, computing may be able to remove some of the barriers children face.

To support children with SEND, teachers can adapt the curriculum in the following ways:

- Build in opportunities for guided enquiry- allow children to explore and get it wrong if needed
- Reduce the number of steps in a sequence or problem.
- Provide pre-learning opportunities for new technical (Tier 2) Vocabulary
- For visually impaired learners, utilise the read-aloud function or magnifying aids built into programmes.
- Consider using assistive technology devices or apps that support different functions.

## Spiritual, Moral, Social & Cultural (SMSC) Development in Computing

### Spiritual

- By wondering at the power of the digital age – using the Internet.
- Understanding the advances and limitations of technology

### Moral

- By teaching the importance of the Internet and online safety when working online using various platforms.
- Ensuring the children have the knowledge and tools to report any instances of bullying, cyber-bullying and online safety issues.
- Exploring the moral issues around data and sharing information

### Social

- By highlighting and teaching ways to stay safe when using online services and social media.
- Teaching and discussing the different ways that the Internet has impacted on communication.
- Preparing the children for the challenges of living and learning in a technologically enriched, increasingly interconnected world.
- Ensuring the children acknowledge technological advances and appreciation for human achievement in a technological world.
- Making clear the guidelines about the ethical use of the Internet and how we keep others and ourselves safe by discussing the moral and social implications of cyberbullying

### Cultural

- Providing the children opportunities to explore human achievements and creativity in relation to technology

## Computing Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<b>Computing Systems &amp; Networks</b>	<b>Creating Media</b>	<b>Programming A</b>	<b>Data &amp; Information</b>	<b>E-Safety (Project Evolve)</b>	<b>Programming B</b>
<b>EYFS</b>	<b>Exploring technology at home and school</b>		<b>Controlling toys and movement</b>		<b>Recording images and Sounds</b>	
<b>YEAR 1</b>	<b>Technology Around Us</b> Recognising technology in school and using it responsibly.	<b>Digital Painting</b> Choosing appropriate tools in a program to create art.	<b>Moving a Robot</b> Writing short algorithms and programs and predicting outcomes.	<b>Grouping Data</b> Exploring object labels, then using them to sort and group objects by properties	<b>Project Evolve</b>	<b>Programming Animations</b> Designing and programming the movement
<b>YEAR 2</b>	<b>Technology Around Us</b> Identifying how computers improve our world.	<b>Digital Writing</b> Using a computer to create and format text before comparing it to writing non-digitally.	<b>Robot Algorithms</b> Creating and debugging programs, and using logical reasoning to make predictions.	<b>Pictograms</b> Collecting data in tally charts and using attributes to organise and present data on a computer	<b>Project Evolve</b>	<b>Programming Quizzes</b> Designing algorithms and programs that use events to trigger sequences of code
<b>YEAR 3</b>	<b>Connecting Computers</b> Understanding how devices can be connected.	<b>Desktop Publishing</b> Creating documents by modifying text, images and page layouts for a specified purpose.	<b>Sequencing</b> Creating sequences in a block-based programming language	<b>Branching Databases</b> Building and using branching databases to group objects using yes/no q	<b>Project Evolve</b>	<b>Events and Actions in Programs</b> Writing algorithms and programs to trigger sequences of actions.
<b>YEAR 4</b>	<b>The Internet</b> Recognising the Internet as a network of networks.	<b>Photo Editing</b> Manipulating digital images.	<b>Repetition in Shapes</b> Using a text-based programming language to explore count-controlled loops.	<b>Spreadsheets</b> Answering questions by using spreadsheets to organise and calculate data.	<b>Project Evolve</b>	<b>Repetition in Games</b> Creating a game in a block-based programming language with infinite loops.
<b>YEAR 5</b>	<b>Sharing Information</b> Identifying and exploring how information is shared between systems.	<b>Vector drawing</b> Creating images in a drawing program by using layers and groups of objects	<b>Selection In Physical Computing</b> Exploring conditions and selection using a Microbits	<b>Flat-File Databases</b> Using a database to order data and create charts to answer questions.	<b>Project Evolve</b>	<b>Selection In Quizzes</b> Exploring selection in programming to design and code an interactive quiz.
<b>YEAR 6</b>	<b>Communication</b> Recognising how the WWW can be used to communicate and be searched to find information.	<b>Webpage Creation Designing</b> and creating webpages, considering copyright, aesthetics, and navigation.	<b>Variables in Games</b> Exploring variables when designing and coding a game.	<b>3 D Modelling (Creating Media)</b> Using a computer to create 3 D Models.	<b>Project Evolve</b>	<b>Sensing</b> Designing and coding a project that captures inputs from a physical device.

\*\* Project Evolve is not a curriculum but a set of evolving online resources and should be accessed via the Project Evolve Website each time.

# Project Evolve Curriculum Map

Project Evolve does not have set objectives for progression but a sequence of strands with appropriate content for each year group identified. The content is constantly evolving to reflect the changing risks that technology can present. Each year, teachers access the content directly from Project Evolve to create a series of lessons on online safety.



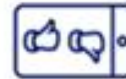
## Self-image and identity

This strand explores the differences between online and offline identity beginning with self-awareness, shaping online identities and media influence in propagating stereotypes. It identifies effective routes for reporting and support and explores the impact of online technologies on self-image and behaviour.



## Online relationships

This strand explores how technology shapes communication styles and identifies strategies for positive relationships in online communities. It offers opportunities to discuss relationships, respecting, giving and denying consent and behaviours that may lead to harm and how positive online interaction can empower and amplify voice.



## Online reputation

This strand explores the concept of reputation and how others may use online information to make judgements. It offers opportunities to develop strategies to manage personal digital content effectively and capitalise on technology's capacity to create effective positive profiles.



## Online bullying

This strand explores bullying and other online aggression and how technology impacts those issues. It offers strategies for effective reporting and intervention and considers how bullying and other aggressive behaviour relates to legislation.



## Managing online information

This strand explores how online information is found, viewed and interpreted. It offers strategies for effective searching, critical evaluation of data, the recognition of risks and the management of online threats and challenges. It explores how online threats can pose risks to our physical safety as well as online safety. It also covers learning relevant to ethical publishing.



## Health, well-being and lifestyle

This strand explores the impact that technology has on health, well-being and lifestyle e.g. mood, sleep, body health and relationships. It also includes understanding negative behaviours and issues amplified and sustained by online technologies and the strategies for dealing with them.



## Privacy and security

This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit impact on privacy and protect data and systems against compromise.



## Copyright and ownership

This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution.



## Progression in Computing Vocabulary

Year 1				
<b>Computing systems and networks - Technology around us</b>	<b>Creating media - Digital painting</b>	<b>Data and information – Grouping</b>	<b>Programming A - Moving a robot</b>	<b>Programming B – Programming animations</b>
technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	paint program, tool, paintbrush, erase, fill, undo, tools, shape, line undo, colour, brush style, brush size, pictures, painting, computers	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.
Year 2				
<b>Computing systems and networks - Information technology around us</b>	<b>Creating media - Digital writing</b>	<b>Data and information – Pictograms</b>	<b>Programming A - Robot algorithms</b>	<b>Programming B - Programming quizzes</b>
Information technology (IT), computer, barcode, scanner/scan	word processor, keyboard, keys, letters, type, numbers, space, backspace, delete, cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, redo, format, compare, typing, writing.	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code
Year 3				
<b>Connecting Computers</b>	<b>Desktop Publishing</b>	<b>Sequencing</b>	<b>Branching Databases</b>	<b>Events and Actions in Programmes</b>
digital device, input, process, output, program, digital, non-digital, connection, network, switch, server,	text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder,	Animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency,	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise,	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors,

wireless access point, cables, sockets	template, layout, content, desktop publishing, copy, paste, purpose, benefits.	evaluation, delete, media, import, transition.	selecting, information, decision tree.	setup, code, test, debug, actions
<b>Year 4</b>				
<b>Computing systems and networks - Connecting computers - The internet</b>	<b>Creating Media - Photo editing</b>	<b>Data and Information - Introduction to spreadsheets</b>	<b>Programming A - Repetition in shapes</b>	<b>Programming B - Repetition in games</b>
internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, data set, organised, chart, evaluate, results, sum, comparison, software, tools	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate
<b>Year 5</b>				
<b>Computing systems and networks - systems and searching</b>	<b>Creating Media - Introduction to vector graphics</b>	<b>Data and Information - Flat-file databases</b>	<b>Programming A - Selection in physical computing</b>	<b>Programming B - Making Quizzes</b>
system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator



Year 6				
Computing systems and networks - Communication and collaboration	Creating media - Webpage creation	Creating Media 3D Modelling	Programming - Variables in games	Programming - Sensing movement
communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug

## Computing Overview EYFS

### Computing in the Early Years

Although not a statutory subject in the Early Years children are prepared for the computing curriculum in year 1 through play based and unplugged activities during enhanced and continuous provision at Latimer.

Children are able to use robotic toys as part of their day to day play and exploration supporting the development of programming; they follow sequences of instructions and learn sequential language which supports computational thinking.

Children become familiar with technology in their classroom, including interactive whiteboards and computers. They will have the opportunity to draw letters and patterns on the interactive whiteboard; watch clips and listen to sounds being made. They will see their teacher search for information on the internet and hear discussions on how to keep safe online.

Personal, Social and Emotional Development		<ul style="list-style-type: none"> <li>Show resilience and perseverance in the face of a challenge.</li> <li>Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.</li> </ul>
Physical Development		<ul style="list-style-type: none"> <li>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</li> </ul>
Expressive Arts and Design		<ul style="list-style-type: none"> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> </ul>
Personal, Social and Emotional Development	Managing Self	<ul style="list-style-type: none"> <li>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</li> <li>Explain the reasons for rules, know right from wrong and try to behave accordingly.</li> </ul>
Expressive Arts and Design	Creating with Materials	<ul style="list-style-type: none"> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> </ul>

Opportunities for Inclusion of Computing in Enhanced Provision		Opportunities for Inclusion of Computing in Continuous Provision	Vocabulary
<ul style="list-style-type: none"> <li>BotsMouseMouse/BeeBots to support development of map work</li> <li>Sequential language to support computational thinking</li> <li>Digital microscope to support exploration of plants and animals</li> </ul>	Sound recorders Digital Cameras Computer keyboard	Sound recorders Digital Cameras Computer keyboard Lights and Sounds Mats Robotic toys Remote control toys	

## Computing in Year 1

Sequence	1	2	3	4	6	7
Unit Name	<b>Computing Systems &amp; Networks (6)</b>	<b>Creating Media (6)</b>	<b>Programming A (6)</b>	<b>Data &amp; Information (6)</b>	<b>Digital Writing (b) (3 Lessons)</b>	<b>Programming B (6)</b>
Purpose	<b>Technology Around Us</b> Recognising technology in school and using it responsibly	<b>Digital Painting</b> Choosing appropriate tools in a program to create art.	<b>Moving a Robot</b> Writing short algorithms and programs and predicting outcomes.	<b>Grouping Data</b> Exploring object labels, then using them to sort and group objects by properties	<b>Digital Writing</b> Using a computer to create and format text, before comparing to writing non-digitally.	<b>Programming Animations</b> Designing and programming the movement
Software required	Unplugged	Paintz.app or Microsoft Paint Icon on desktop	Mousebots- Box of 15 available in KS1	Unplugged	<b>Word</b>	Scratch Jnr  (Icon on Desktop)
Teachers should refer to the content of Unit 6 Digital Writing at the beginning of the year and refer to this throughout other units and during classroom activities to support development of keyboard skills which are embedded in Unit 6. Unit 6 has been split across year 1 and year 2. With lessons 1-3 being taught in year 1.						

## Computing in Year2

Sequence	1	2	3	4	6
Unit Name	<b>Computing Systems &amp; Networks (6)</b>	<b>Digital Writing (b) (6 Lessons)</b>	<b>Programming A (6)</b>	<b>Data &amp; Information (6)</b>	<b>Programming B (6)</b>
Purpose	<b>Technology Around Us</b> Identifying how computers improve our world.	<b>Digital Writing</b> Using a computer to create and format text, before comparing to writing non-digitally.	<b>Robot Algorithms</b> Creating and debugging programs, and using logical reasoning to make predictions.	<b>Pictograms</b> Collecting data in tally charts and using attributes to organise and present data on a computer	<b>Programming Quizzes</b> Designing algorithms and programs that use events to trigger sequences of code
Software required	Powerpoint	<b>Word</b>	Mousebots- Box of 15 available in KS1	J2datapictogram	<b>ScratchJnr</b>
Unit 2 (digital writing) is part b of Year 1 digital writing. Lessons 1-3 should be consolidated quickly following pre-unit assessment of keyboard skills. Lessons 3-6 skills should be the focus of the unit.					

**NB- Units should be taught in order outlined above.**

## Computing in Year 3

Sequence	1	2	3	4	6
<b>Unit Name</b>	<b>Computing Systems &amp; Networks (6)</b>	<b>Creating Media (6)</b>	<b>Programming A- Sequencing (6)</b>	<b>Data &amp; Information (6)</b>	<b>Programming B (6)</b>
<b>Purpose</b>	<b>Connecting Computers</b> Identifying that digital devices have inputs, processes and outputs and they can be connected to make networks.	<b>Desktop publishing</b> Creating documents, modifying texts, images and page layouts for a purpose.	<b>Creating sequences</b> in a block based programme	<b>Branching databases</b> Building branching databases to group objects using yes/no questions	<b>Events and Actions</b> Writing algorithms or programmes that use a range of events to trigger sequences.
<b>Software required</b>		Publisher	Scratch	J2 Databranch (Online)	Scratch

## Computing in Year 4

Sequence	1	2	3	4	6
<b>Unit Name</b>	<b>Computing Systems &amp; Networks (6)</b>	<b>Creating Media (6)</b>	<b>Programming A- Sequencing (6)</b>	<b>Data &amp; Information (6)</b>	<b>Programming B (6)</b>
<b>Purpose</b>	<b>The Internet</b> Recognising the internet as a network of networks.	<b>Photo Editing</b> Manipulating digital images and reflecting on the impact of changes.	<b>Repetition in shapes</b> Using a text based programming language to explore count controlled loops when drawing shapes.	<b>Introduction to Spreadsheets and Data</b>	<b>Repetition in Games</b> Using a block based programming language to explore count-controlled and infinite loops when creating a game.
<b>Software required</b>		Paint.Net	Scratch Jnr	Excel	Scratch

## Computing in Year 5

Sequence	1	2	3	4	6
Unit Name	<b>Computing Systems &amp; Networks (6)</b>	<b>Creating Media (6)</b>	<b>Programming A- Sequencing (6)</b>	<b>Data &amp; Information (6)</b>	<b>Programming B (6)</b>
Purpose	<b>Systems and Searching</b> Recognising IT Systems in the world and how it enables someone to search the internet.	<b>Introduction to Vector Graphs</b> Creating images by drawing programme using layers and groups of objects.	<b>Physical Computing</b> Introduction to using microbits.	<b>Flat File Databases</b> Using a database to order data and create charts to answer questions.	<b>Selection in Quizzes</b> Exploring selection in programming to design and code an interactive quiz.
Software required	Google Slides	Google Drawings	Microbits	J2Database	Scratch

## Computing in Year 6

Sequence	1	2	3	4	6
Unit Name	<b>Computing Systems &amp; Networks (6)</b>	<b>Creating Media (6)</b>	<b>Programming A- Sequencing (6)</b>	<b>Creating Media (6)</b>	<b>Programming B (6)</b>
Purpose	<b>Communication and Collaboration</b> Exploring how data is transferred by working collaboratively online.	<b>Webpage Creation</b> Designing and Creating Webpages.	<b>Variables in Games</b> Exploring variables when designing and coding a game.	<b>3 D Modelling</b> Planning, developing and evaluating 3D models of physical objects.	<b>Sensing Movement</b> Designing and coding a project that captures inputs from physical devices.
Software required	Google Slides	Google Sites	Google Sheets/Excel	Tinkercad	Microbits