Tollgate Primary School Curriculum 2022-2023
Subject: Computing

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**E-Safety** -Identifying technology the children use -Talking about basic use	**Mechanical Toys** -Exploring mechanical toys -Using them with increasing confidence	**Water Transportation** -Exploring water and its uses -Moving water from one place to the other	**Bee Bots** -Knowing buttons make it move -Exploring forwards and backwards	**Phonics** -Computer games on the IWB -Increasing confidence to use independently	**Media** -Paint on iPads -Colour in pictures
Reception	**E-Safety** -Click Clever, Click Safe - zip it, block it, flag it -Exploring why it is important to be safe	**Computer Systems** - To understand what a keyboard is - To locate familiar letters in my name - To understand the role of a mouse - To click and drag using a mouse	**All about instructions** - To follow instructions - To give simple instructions - To write simple instructions - To predict the outcome of instructions	**Exploring Hardware** - To explore a range of hardware - To classify uses of hardware - To understand how to take a picture - To understand how to take pictures safely - To create a class gallery	**Bee- Bots** - To understand the meaning of arrows - To programme a bee-bot - To understand what an algorithm is - To debug instructions	**Data Handling** - To sort and categorise items - To categorise by answering yes or no questions - To interpret pictograms - To create pictograms
Year 1	**E-Safety** **Managing online and personal information** -To explain what devices have the internet - zip it, block it, flag it -To understand how to manage personal information -To identify trusted adults.	**Algorithms Unplugged** - To explain what an algorithm is - To write clear algorithms - To explain what inputs and outputs are - To identify bugs and debug basic algorithms	**Creating Digital Imagery** - Plan a pictorial story using photographic images in sequence - To take photos using a device - To edit photos using cropping, resizing, and filtering - To explain what to do if something makes them feel uncomfortable online	**Bee-Bots** - To recognise cause and effect when pressing buttons on a Bee-Bot - To discuss and demonstrate how a Bee-Bot works - To programme a Bee-Bot to reach a destination - To create a programme - To debug an algorithm	**Data Collection** - To log in to a Chromebook - To represent themed data using objects and technology - To collect data using a tally chart - To represent data as a pictogram, chart or table - To begin to understand what a branching database is.	**Rocket Launching** - To create a list using technology - To explain the benefits of technology based lists over other forms - To design a rocket on software - To follow instructions to build a rocket - To record data - To interpret data
Year 2	**E-Safety** **Posting online** -To understand what it means to post online -Keeping passwords safe	**Word Processing** - To locate keys on a keyboard - To modify text in a document	**Algorithms and Debugging** - To explain the term decomposition - To write clear and precise algorithms	**Stop motion** - To create a flip book animation. - To decompose a story into smaller	**Data Handling** -To explain what data handling is. -To create a pie chart and bar chart.	**Scratch** - To explore a new application independently. - To explain what the blocks on ScratchJr

Tollgate Primary School Curriculum 2022-2023
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	-Identifying strategies to detect if information is true or false online	- To type and make simple alterations to text using buttons on a word processor. - To use copy and paste - To explain what information is safe to share online	- To create and solve algorithms - To include loops in my algorithms - To explain what abstraction is	parts to plan a stop motion animation. - To create stop motion animations with small changes between images.	-To create a branching database - To analyse and interpret a range of data	do and use them for a purpose. - To use a code to create an animation of an animal moving. - To use code to follow and create an algorithm. - To explain the role of the blocks in a program they have created.
Year 3	**E-Safety** **Online health and wellbeing** - To understand age restrictions, why they are on certain games and apps. - To understand the importance of not spending too much time online	**Computer Systems- networks** - Recognise that a network is two or more devices connected. - Explain how information moves around a network and the role of the server. - Understand that networks connect to the internet via a router. - Explain some of the journey a website goes through to reach your computer. - Explain that websites are split into small pieces (packets) to be sent via the internet.	**Creating Media** - To describe the purpose of a trailer. - To create a storyboard for a book trailer. - To consider camera angles when taking photos or videos. - To import videos and photos into film editing software. - To add text to a video. - To incorporate transitions between images. - To evaluate their own and others' trailers	**Emails** - To log in and out of email. - To send a simple email with a subject plus 'To' and 'From' in the body of the text. - To edit an email. - To add an attachment to an email. - To write an email using positive language, with an awareness of how it will make the recipient feel. - To recognise when an email may be fake and explain how they know.	**Data Handling** - To explain what is meant by 'field,' 'record,' and 'data.' - To compare paper and computerised databases. - To insert values into a spreadsheet. - To Sort, filter and interpret data in a spreadsheet. - To create a graph on Google Sheets. - To explain the purpose of visual representations of data.	**Scratch** - To explain what some of the blocks do in Scratch. - To explain what a loop is and include one in their program. - To suggest possible additions to an existing program. - To recognise where something on screen is controlled by code. - To create a systematic approach to find bugs. - To explain what an algorithm is and its purpose.
Year 4	**E-Safety** **Phishing and Online Security** -To understand the terms malware, viruses, phishing and identify theft. -To understand how to send emails and other	**Computing Systems** - To understand the need to be thoughtful when working on a collaborative document. - To suggest changes to a document and	**Scratch** - To explain what a variety of the blocks do in Scratch. - To suggest possible additions to an existing program.	**Website Design** - To use most of the tabs (e.g. insert, pages, themes) on - To create a clear plan for their web page and begin to create it. - To create a professional looking web page with	**Google Sketchup (Level 1)** - To analyse the features of Sketchup. - To create a range of quadrilaterals. - To create a 3D object using 2D assets.	**Computational Thinking** - To understand that problems can be solved more easily using computational thinking.

Tollgate Primary School Curriculum 2022-2023
Subject: Computing

	information online securely and safely. - To understand what a bot is -	understand how to resolve comments. - To create a variety of different slide styles to convey information including images and transitions. - To create a Google Form with a range of different questions types that will provide different types of answers, e.g. text, multiple choice or numerical values.	- To recognise where something on screen is controlled by code. - To use a systematic approach to find bugs. - To explain what an algorithm is and its purpose.	useful information and a clear style, which is easy for the user to read and find information from. - To create a clear plan by referring back to their checklist. - To create four web pages with a range of features on their website.	- To design and create a play pen.	- To understand what the different code blocks do and create a simple game. - To understand the terms 'pattern recognition' and 'abstraction' and how they help to solve a problem. - To create a program which draws a square and at least one other shape. - To understand how computational thinking can help to solve problems and apply computational thinking to problems they face.

Tollgate Primary School Curriculum 2022-2023
Subject: Computing

Year 5	**E-Safety** **Cyberbullying & Mental Health** -To recognise harassment, denigration flaming cyberstalking, impersonation, blackmail and grooming online. -To Understand strategies to help us keep us safe from these threats and identify who can help us keep safe.	**Stop animation** - To create a toy with simple images with a single movement. - To create a short stop motion with small changes between images. - To think of a simple story idea for their animation then decompose it into smaller parts to create a storyboard with simple characters. - To adapt the models to ensure a smooth animation and delete unnecessary frames. - To apply effects such as extending parts and titles. - To explain helpful feedback to other groups about their animations	**Computer systems and Search engines** - To explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information. - To understand that things online aren't always true and recognise what to check for. - To explain why keywords are important and what TASK stands for, using these strategies to search effectively. - To recognise the terms 'copyright' and 'fair use' and combine text and images in a poster. - To compare parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank.	**Music** - To iterate ideas, testing and changing throughout the lesson. Explain what the basic commands do. - To explain how their program links to the theme. Include a loop in their work. Correct their own simple mistakes. - To explain their scene in the story. Link musical concepts to their scene. Include a repeat and explain its function to enhance music. - To code a piece of music that combines a variety of structures. Use loops in their programming. - To recognise that programming music is a way to apply their skills	**Data Handling** - To identify some of the types of data that the Mars Rover could collect (for example, photos). - To explain how the Mars Rover transmits the data back to Earth and the challenges involved in this. - To read any number in binary, up to eight bits. - To identify input, processing and output on the Mars Rovers. - To read binary numbers and grasp the concept of binary addition. - To relate binary signals (Boolean) to a simple character-based language, ASCII.	**Programming** - To clip blocks together and predict what will happen. Make connections with previous programming interfaces they've used, e.g. Scratch. - To create their own images to make the animation and recognise the difference between 'on start' and 'forever'. - To recognise blocks they've used previously, identifying inputs and outputs used and make predictions about how variables work. - To Choose appropriate blocks to complete the program and attempt the challenges independently. - To decompose a program down into smaller steps, suggesting appropriate blocks and match the algorithm to the program.
Year 6	**E-Safety** **Social Media Applications and online reputation** -To identify the dangers of social media apps/websites	**Computer systems – Bletchy Park** - To explain that codes can be used for a number of different	**Data Handling** - To understand why barcodes and QR codes were created. - To create (and scan) their own QR code	**J2Logo** - To iterate ideas, testing and changing throughout the lesson and explain	**Data Handling** - To recognise that data can become corrupted within a network and that data sent in packets	**Inventing a Product** - To evaluate code, understanding what it does and adapt existing to code for a specific purpose.

Tollgate Primary School Curriculum 2022-2023
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	-To analyse the impact of social media apps on mental health.	reasons and decode messages. - To explain how to ensure a password is secure and how this works. - To create a simple presentation with information about Bletchley Park including the need to build electronic thinking machines to solve cipher codes. - To explain the importance of historical figures and their contribution towards computer science. - To present information about their historical figure in an interesting and engaging manner.	using a QR code generator website. - To explain how infrared can be used to transmit a Boolean type signal. - To explain how RFID works, recall a use of RFID chips, and type formulas into spreadsheets. - To record real-time data and enter it effectively into a spreadsheet. - To present the data collected as an answer to a question. - To recognise the value of analysing real-time data. - To analyse and evaluate transport data and consider how this provides a useful service to commuters.	what their program does. - To incorporate nested loops in their designs, explaining why they need two repeats. - To alter the house drawing using text based commands; use comments to show a level of understanding around what their code does. - To incorporate loops in j2logo and explain what the parts of a loop do. - To recognise that computers can choose random numbers; decompose the program into an algorithm and modify a program to personalise it.	is more robust, as well as identify the need to update devices and software. - To recognise differences between mobile data and Wi-Fi and use a spreadsheet to compare and identify high-use data activities and low-use data activities. - To identify links between the Internet of Things and Big Data and give a basic example of how data analysis/analytics can lead to improvement in town planning. - To explain ways that Big Data or IoT (Internet of Things) principles could be used to solve a problem or improve efficiency within the school and prepare a presentation about their idea, considering the privacy of some data. - To present their ideas about how Big Data/IoT can improve the school and provide feedback to others on their presentations.	- To debug programs and make them more efficient using sequence, selection, repetition or variables. - To design appropriate housing for their product using CAD software, including any input or output devices needed to make it work. - To create an appealing website for their product, aimed at their target audience which explains what their product is and what it does, using persuasive language. - To create an edited video of their project, articulating the key benefits. - To describe and show how to search for information online and be aware of the accuracy of the results presented