CROSSGATES PRIMARY SCHOOL SUBJECT – COMPUTING LONG TERM PLAN

	Autumn		Spring		Summer		Blocks
E-Safety Mantra	TURN OFF AND TELL		TURN OFF AND TELL		TURN OFF AND TELL		
Reception	Continuous Provision – access to devices (phones, cameras, laptops) **Role Play & Technology Area** Technology, Computer, Screen, Button, Camera, Phone, Sound, Press E-safety thread – discussions about what they have access to at home and what to do if something makes them feel unsafe.		Continuous Provision – access to devices (phones, cameras, laptops) **General Problem Solving & Outdoor Play** Step, Instruction, Sequence, Try Again, Fix E safety thread – focus on trusted adults		Continuous Provision – access to devices (phones, cameras, laptops) **Floor Robot & Construction Provision** Robot, Go, Stop, Forward, Backward, Turn, Clear E safety threads – discuss rules to keep us safe and healthy online, in school and at home.		Block 1 (2 year cycle)
Year 1	**Computing Systems and Networks – Technology Around Us** Lesson Objectives: To locate examples of technology in the classroom and explain how they can help us. To name the main parts of a computer, to log in to a computer and to click and drag with a mouse. To use a mouse to open and program and to create a picture with a mouse. To type my name using a keyboard and to delete letters. To save my work to a file and to open my work from a file.	**Creating Media – Digital Painting** Lesson Objectives: To use the paint tool to make marks, shapes and pictures on a computer. To make marks with shape and line tools and to recreate the work of an artist using these tools. To choose shapes and colours to recreate the work of an artist on paint. (Link Wassily Kandinksy) To make dots of colour on the page and to change the size of colour and brush sizes. Children to explain that pictures can be made in different ways, children to spot differences between painting on a computer or paper and state which one they prefer and why.	**Programming A – moving a robot** Lesson objective Lesson1 – Buttons: I can predict the outcome of a command on a device I can match a command to an outcome I can run a command on a device Lesson 2 – Directions I can follow an instruction I can recall words that can be acted out I can give directions Lesson 3 – Forwards and backwards I can compare forward and backward movements I can start a sequence from the same place I can predict the outcome of a sequence involving	**Data and information- grouping data** Lesson objective Lesson 1 – Label and match I can describe objects using labels I can match objects to groups I can identify the label for a group of objects Lesson 2 – Group and count To identify that objects can be counted Lesson 3 – Describe an object To describe objects in different ways I can describe an object I can describe a property of an object I can find objects with similar properties Lesson 4 – Making different groups To count objects with the same properties I can group similar objects I can group objects in more than one way	**Creating Media – Digital Writing** **Lesson 1** To use a computer to write I can open a word processor I can recognise keys on a keyboard I can identify and find keys on a keyboard **Lesson 2** To add and remove text on a computer I can enter text into a computer I can use letter, number, and Space keys I can use Backspace to remove text **Lesson 3** To identify that the look of text can be changed on a computer I can type capital letters I can explain what the keys that I have already learnt about do I can identify the toolbar and use bold, italic, and underline **Lesson 4** To make careful choices when changing text I can select a word by double-clicking	Programming B – Programming animations **Lesson 1** To choose a command for a given purpose I can find the commands to move a sprite I can use commands to move a sprite I can compare different programming tools **Lesson 2** To show that a series of commands can be joined together I can use more than one block by joining them together I can use a **Start** block in a program I can run my program **Lesson 3** To identify the effect of changing a value I can find blocks that have numbers I can change the value I can say what happens when I change a value **Lesson 4**	

	Technology, Computer, Mouse, Keyboard, File E-safety Thread - discuss rules to keep us safe and healthy online, in school and at home.	Paint Tool, Shape Tool, Line Tool, Brush Size, Digital Painting E-safety Thread – when saving or sharing artwork, discuss why we should only use initials and not full names.	'forwards' and 'backwards' commands Lesson 4 – Four directions I can compare left and right turns I can experiment with 'turn' and 'move' commands to move a robot I can predict the outcome of a sequence involving up to four commands Lesson 5 – Getting there I can explain what my program should do I can choose the order of commands in a sequence I can debug my program Lesson 6 – Routes I can identify several possible solutions I can plan two programs I can use two different programs to get to the same place Floor Robot, Command, Direction, Turn, Debug Discuss rules for using technology safely and respectfully, understanding that we must press buttons gently, share floor robots with peers, and ask a trusted adult before using digital devices.	I can count how many objects share a property Lesson 5 - Comparing groups To compare groups of objects I can choose how to group objects I can describe groups of objects I can record how many objects are in a group Lesson 6 – Answering questions To answer questions about groups of objects I can decide how to group objects to answer a question I can compare groups of objects I can record and share what I have found Label, Group, Count, Property, Object Discuss personal information vs. general labels, learning that while sorting colors or shapes is safe, our own private details (like full names, home addresses, and phone numbers) belong in a safe 'private' group that we do not share.	I can select all of the text by clicking and dragging I can change the font **Lesson 5** To explain why I used the tools that I chose I can say what tool I used to change the text I can decide if my changes have improved my writing I can use 'Undo' to remove changes **Lesson 6** To compare typing on a computer to writing on paper I can make changes to text on a computer I can explain the differences between typing and writing I can say why I prefer typing or writing Word Processor, Keyboard, Toolbar, Font, Undo Discuss being kind with digital words, understanding that the words we type on a screen affect other people's feelings just like spoken words, and telling an adult if we see something on screen that makes us feel sad.	To explain that each sprite has its own instructions I can show that a project can include more than one sprite I can delete a sprite I can add blocks to each of my sprites **Lesson 5** To design the parts of a project I can choose appropriate artwork for my project I can decide how each sprite will move I can create an algorithm for each sprite **Lesson 6** To use my algorithm to create a program I can use sprites that match my design I can add programming blocks based on my algorithm I can test the programs I have created Sprite, Block, Value, Algorithm, Test Discuss safe digital play and screen boundaries, learning how to stop, log off, and step away from a screen when a task is finished or when an adult asks us to.	

Year 2/3 Cycle 1	**Computing Systems and Networks – IT around us** Lesson Objectives: To identify examples of computers, state the uses of computers and identify that a computer is part of IT. To identify the uses of IT in school and beyond school. To explain how IT helps us and to demonstrate how IT devices work together. To explain how to use information technology safely by discussing different rules for IT. To recognise that choices are made when using information technology. Information Technology (IT), Computer, Rules, Choice, Digital Safety E-safety Thread - rules of using devices and computers, permissions, passwords.	**Creating Media – Digital Photography** Lesson Objectives: To use a digital device to take a photograph. To make choices when taking a photograph. To take photographs in landscape or portrait. To describe what makes a good photograph and to retake a picture to improve it. To decide how a photograph can be improved by experimenting with light sources. To use the adjust tool to change an image and to identify photos that have been edit or changed using IT. Digital Device, Landscape, Portrait, Light Source, Edit E-safety Thread– discuss getting permission before photographing someone and what things are appropriate/inappropriate to photograph.	**Programming A – Robot Algorithms** Lesson objective To describe a series of instructions as a sequence To explain what happens when we change the order of instructions To use logical reasoning to predict the outcome of a program To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written Instruction, Sequence, Order, Algorithm, Debugging Discuss giving clear, safe instructions and following rules online, understanding that computers only follow the exact	**Data and Information – Pictograms** Lesson objective To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer Tally Chart, Pictogram, Attribute, Data, Comparison Discuss keeping personal attributes private, understanding what counts as personal information (e.g., eye color vs. home address), and learning which details are safe to share in class tally charts or online pictograms.	**Creating Media – Digital Music** **Lesson 1** To say how music can make us feel I can identify simple differences in pieces of music I can describe music using adjectives I can say what I do and don't like about a piece of music **Lesson 2** To identify that there are patterns in music I can create a rhythm pattern I can play an instrument following a rhythm pattern I can explain that music is created and played by humans **Lesson 3** To experiment with sound using a computer I can connect images with sounds I can use a computer to experiment with pitch I can relate an idea to a piece of music **Lesson 4** To use a computer to create a musical pattern I can identify that music is a sequence of notes I can explain how my music can be played in different ways I can refine my musical pattern on a computer **Lesson 5** To create music for a purpose I can create a rhythm which represents an animal I've chosen I can create my animal's rhythm on a computer I can add a sequence of notes to my rhythm **Lesson 6**	**Programming B – Programming Quizzes** **Lesson 1** To explain that a sequence of commands has a start I can identify the start of a sequence I can identify that a program needs to be started I can show how to run my program **Lesson 2** To explain that a sequence of commands has an outcome I can predict the outcome of a sequence of commands I can match two sequences with the same outcome I can change the outcome of a sequence of commands **Lesson 3** To create a program using a given design I can work out the actions of a sprite in an algorithm I can decide which blocks to use to meet the design I can build the sequences of blocks I need **Lesson 4** To change a given design I can choose backgrounds for the design I can choose characters for the design I can create a program based on the new design **Lesson 5**	Block 2 (2 year cycle)

			commands we give them and knowing who to turn to if a device does something unexpected.		To review and refine our computer work • I can review my work • I can explain how I changed my work I can listen to music and describe how it makes me feel Digital Music, Rhythm, Pattern, Pitch, Sequence Discuss online wellbeing and digital emotions, exploring how listening to or creating media online can affect our mood, and knowing how to step away from screens if digital content makes us feel unhappy or overwhelmed.	To create a program using my own design I can choose the images for my own design I can create an algorithm I can build sequences of blocks to match my design **Lesson 6** To decide how my project can be improved • I can compare my project to my design • I can improve my project by adding features • I can debug my program Start, Sequence, Outcome, Algorithm, Debugging Discuss online choices and actions, understanding that every action we take in a digital program or online space leads to an outcome, and practicing making kind, safe choices online.	

Year 2/3 Cycle 2	**Computing Systems and Networks – Connecting computers** 1. To explain how digital devices function 2. To identify input and output devices 3. To recognise how digital devices can change the way we work 4. To explain how a computer network can be used to share information 5.To explore how digital devices can be connected 6. To recognise the physical components of a network Digital Device, Input, Output, Computer Network, Physical Component Discuss what it means to be connected to a network/internet, the difference between offline and online activities, and knowing who to ask	**Creating Media – Stop Frame animation** 1. To explain that animation is a sequence of drawings or photographs 2. To relate animated movement with a sequence of images 3. To plan an animation 4. To identify the need to work consistently and carefully 5. To review and improve an animation 6. To evaluate the impact of adding other media to an animation Stop Frame Animation, Frame, Sequence, Storyboard, Media Discuss media balance and screen time, keeping safe when sharing digital creations, and respecting other people's feelings when capturing their photo or work.	**Programming A – Sequencing Sounds (Scratch)** 1. To explore a new programming environment 2. To identify that commands have an outcome 3. To explain that a program has a start 4. To recognise that a sequence of commands can have an order 5. To change the appearance of my project 6. To create a project from a task description Scratch, Command, Sequence, Stage, Sprite Discuss keeping personal identity safe online, creating safe digital avatars or usernames instead of using	**Data and information – Branching databases** 1. To create questions with yes/no answers 2. To identify the attributes needed to collect data about an object 3. To create a branching database 4. To explain why it is helpful for a database to be well structured 5. To plan the structure of a branching database 6. To independently create an identification tool Branching Database, Attribute, Yes/No Question, Classification, Identification Tool Discuss personal details vs. general attributes, understanding that personal data (like home address, full name, or school) should not be answered or put into online forms/questions.	**Creating Media – Desktop Publishing** Hardware: Chromebooks Software:Children need a canva for an education account/ You need to get parental permission and they have this on the planning links. As a teacher you need a canva account 1. To recognise how text and images convey information 2. To recognise that text and layout can be edited 3. To choose appropriate page settings 4. To add content to a desktop publishing publication 5. To consider how different layouts can suit different purposes 6. To consider the benefits of desktop publishing Desktop Publishing, Layout, Template, Orientation, Placeholder Discuss digital footprints and online reputation, understanding that information, images, and text published digitally can be seen by others	**Programming B – Events and actions in programs** Hardware: Chromebooks Software: Scratch 1. To explain how a sprite moves in an existing project 2. To create a program to move a sprite in four directions 3. To adapt a program to a new context 4. To develop my program by adding features 5. To identify and fix bugs in a program 6. To design and create a maze-based challenge Event, Action, Motion, Bug, Debugging Discuss coping with online frustration, managing feelings when games or programs do not	

	for help (trusted adults) when using connected digital devices.		real full names, and keeping passwords secret.		and should always be kind, accurate, and safe.	work as expected (debugging), and playing safely in interactive digital spaces.	
Year 4/5 Cycle 1	**Computing Systems and Network – The Internet** Lesson Objectives: To describe how networks physically connect to other networks. To recognise how networked devices make up the internet. To outline how websites can be shared via the World Wide Web (WWW) To recognise how the content of the WWW is created by people. **Network, Router, Internet, World Wide Web, Content Creator** E-safety Thread – look at the consequences of unreliable content on the internet and how to keep safe when using different websites.	**Creating Media – Audio Production** Lesson Objectives – To identify the input and output devices used to record and play sound and to record audio on a device. To inspect the sound wave view and trim audio. To plan appropriate content for a podcast and to save mu podcast to edit in future. To create a podcast. To combine audio to enhance my podcast project. **Input Device, Output Device, Waveform, Trimming, Podcast** E-safety thread – discuss personal information and what should/should not be shared on podcasts. Discuss consequences of actions and digital footprint.	**Programming A - Repetition in shapes** Lesson objective To explore a new programming environment To identify that commands have an outcome To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description **Programming Environment, Command, Sequence, Order, Sprite** Discuss online identity and privacy, understanding why we should use safe avatars	**Data and Information – Data Logging** Lesson objective To create questions with yes/no answers To identify the attributes needed to collect data about an object To create a branching database To explain why it is helpful for a database to be well structured To plan the structure of a branching database To independently create an identification tool **Data Logger, Sensor, Interval, Data Collection, Analysis** Discuss automated data collection and privacy, exploring how smart sensors (like location tracking, health monitors, or smart home devices) gather personal data continuously.	**Creating Media – Photo Editing** **Lesson 1** To explain that the composition of digital images can be changed I can improve an image by rotating it I can explain why I might crop an image I can use photo editing software to crop an image I understand that editing images can be unethical **Lesson 2** To explain that colours can be changed in digital images I can explain that different colour effects make you think and feel different things I can experiment with different colour effects I can explain why I chose certain colour effects **Lesson 3** To explain how cloning can be used in photo editing I can add to the composition of an image by cloning I can identify how a photo edit can be improved I can remove parts of an image using cloning **Lesson 4** To explain that images can be combined I can experiment with tools to select and copy part of an image I can use a range of tools to copy between images	**Programming B – Repetition in Games** **Lesson 1** To develop the use of count-controlled loops in a different programming environment I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome **Lesson 2** To explain that in programming there are infinite loops and count-controlled loops I can modify loops to produce a given outcome I can choose when to use a count-controlled and an infinite loop I can recognise that some programming languages enable more than one process to be run at once **Lesson 3** To develop a design that includes two or more loops which run at the same time I can choose which action will be repeated for each object I can explain what the outcome of the repeated action should be I can evaluate the effectiveness of the repeated sequences used in my program	Block 3 (2 year cycle)

			and project names rather than personal information when creating and saving digital projects.		I can explain why photos might be edited **Lesson 5** To combine images for a purpose I can describe the image I want to create I can choose suitable images for my project I can create a project that is a combination of other images **Lesson 6** To evaluate how changes can improve an image I can review images against a given criteria I can use feedback to guide making changes I can combine text and my image to complete the project **Photo Editing, Composition, Crop, Filter, Cloning** Discuss digital manipulation, body image, and online trust: exploring how altered photos on social media/advertising can mislead viewers and affect feelings of self-worth.	**Lesson 4** To modify an infinite loop in a given program I can identify which parts of a loop can be changed I can explain the effect of my changes I can re-use existing code snippets on new sprites **Lesson 5** To design a project that includes repetition I can evaluate the use of repetition in a project I can select key parts of a given project to use in my own design I can develop my own design explaining what my project will do **Lesson 6** To create a project that includes repetition I can refine the algorithm in my design I can build a program that follows my design I can evaluate the steps I followed when building my project **Count-controlled Loop, Infinite Loop, Repetition, Sprite, Algorithm** Discuss online gaming habits and screen time balance, understanding how game mechanics (like infinite loops and rewards) are designed to keep players engaged.	

Year 4/5 Cycle 2	**Computing Systems and Network – Systems and searching** 1. To explain that computers can be connected together to form systems 2. To recognise the role of computer systems in our lives 3. To experiment with search engines 4. To describe how search engines select results 5. To explain how search results are ranked 6. To recognise why the order of results is important, and to whom **Computer System, Search Engine, Index, Web Crawler, Ranking** E-Safety Thread Suggestion: Discuss search engine reliability, fake news, search result ranking bias (adverts vs. genuine content), and how to search	**Creating Media – Video Production** 1. To explain what makes a video effective 2. To identify digital devices that can record video 3. To capture video using a range of techniques 4. To create a storyboard 5. To identify that video can be improved through reshooting and editing 6. To consider the impact of the choices made when making and sharing a video **Effective Video, Storyboard, Recording, Reshooting, Editing** Discuss video privacy, online permission (consent) before filming or sharing images/videos of others, and understanding age limits and risks on	**Programming A – Selection in physical computing** 1. To control a simple circuit connected to a computer 2. To write a program that includes count-controlled loops 3. To explain that a loop can stop when a condition is met 4. To explain that a loop can be used to repeatedly check whether a condition has been met 5. To design a physical project that includes selection 6. To create a program that controls a physical computing project **Circuit, Count-controlled Loop, Infinite Loop, Condition, Selection** Discuss Smart Home tech and automated	**Data and Information – Flat-file databases** 1. To use a form to record information 2. To compare paper and computer-based databases 3. To outline how you can answer questions by grouping and then sorting data 4. To explain that tools can be used to select specific data 5. To explain that tools can be used to select specific data 6. To use a real-world database to answer questions **Flat-file Database, Record, Field, Sorting, Filtering** Discuss personal data privacy, what counts as personal information, how online forms collect data, and why personal information should not be shared carelessly online.	**Creating Media – Intro to Vector graphics** 1. To identify that drawing tools can be used to produce different outcomes 2. To create a vector drawing by combining shapes 3. To use tools to achieve a desired effect 4. To recognise that vector drawings consist of layers 5. To group objects to make them easier to work with 6. To apply what I have learned about vector drawings **Vector Drawing, Object, Layer, Grouping, Path** Discuss digital copyright, giving credit to original creators, and avoiding copying or re-using digital graphics without permission when sharing work online.	**Programming B – Selection in quizzes** 1. To explain how selection is used in computer programs 2. To relate that a conditional statement connects a condition to an outcome 3. To explain how selection directs the flow of a program 4. To design a program which uses selection 5. To create a program which uses selection 6. To evaluate my program **Vector Graphics, Object, Layer, Grouping, Path, Alignment, Selection Tool, Resizing, Node, Canvas** Discuss online quizzes, phishing scams, and suspicious pop-ups that use 'interactive questions' to collect personal information or trick users into clicking unsafe links.	

	safely using appropriate search terms.	video-sharing platforms.	devices, exploring how connected physical devices collect physical inputs and keep physical environment data safe.				
Year 6	**Computing systems and networks – Communication and collaboration** Lesson Objectives: To explain the importance of internet addresses To recognise how data is transferred across the internet, identifying the main parts of a data packet. To access shared files stored online and identify how these can help people work together. To recognise how we communicate using technology and to choose suitable methods of communication for different purposes. ▯ IP Address	**Creating Media – Web Page Creation** Lesson Objectives: To explore and review an existing website and consider its structure and to understand that websites are written in HTML. To plan the features of a web page, draw a web page layout and suggest media to include on my page. To consider the ownership and use of images (copyright). To find copy-right free images and to understand what is meant by fair-use. To add content to my own web page and to preview my web page.	**Programming A – variables in games** Lesson objective To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project ▯ Variable ▯ Value ▯ Algorithm ▯ Design ▯ Evaluate	**Data and information – introduction to spreadsheets** Lesson objectives To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data ▯ Spreadsheet ▯ Cell ▯ Formula ▯ Data Set ▯ Chart	**Creating Media – 3d modelling** Lesson objectives **Lesson 1** To recognise that you can work in three dimensions on a computer I can add 3D shapes to a project I can view 3D shapes from different perspectives I can move 3D shapes relative to one another **Lesson 2** To identify that digital 3D objects can be modified I can resize an object in three dimensions I can lift/lower 3D objects I can recolour a 3D object **Lesson 3** To recognise that objects can be combined in a 3D model I can rotate objects in three dimensions I can duplicate 3D objects I can group 3D objects **Lesson 4** To create a 3D model for a given purpose I can accurately size 3D objects I can show that placeholders can create holes in 3D objects	**Programming B – Sensing movement** Lesson objectives **Lesson 1** To create a program to run on a controllable device I can apply my knowledge of programming to a new environment I can test my program on an emulator I can transfer my program to a controllable device **Lesson 2** To create a program to run on a controllable device I can apply my knowledge of programming to a new environment I can test my program on an emulator I can transfer my program to a controllable device **Lesson 3**	Block 4 (1 year cycle)

	Data Packet Packet Header Cloud Storage Collaborative Working E-safety thread – discuss digital footprint, responsible use of online communication tools and online risks.	To outline the need for a navigation path and to use hyperlinks. HTML Copyright Fair Use Hyperlink Navigation Path E-safety Thread – Discuss real-world implications, copyright, privacy and online reputation.	Discuss online gaming safety, respectful behavior in online gaming communities, and managing personal data (such as avoiding sharing real names, locations, or personal information in user profiles or game chat features).	E-Safety Thread Suggestion: Discuss data privacy, how personal data is collected, stored, and shared online, and the importance of keeping personal financial and demographic data secure.	I can combine a number of 3D objects **Lesson 5** To plan my own 3D model I can analyse a 3D model I can choose objects to use in a 3D model I can combine objects in a design **Lesson 6** To create my own digital 3D model I can construct a 3D model based on a design I can explain how my 3D model could be improved I can modify my 3D model to improve it 3D Model Perspective Rotate Group Placeholder E-Safety Thread Suggestion: Discuss intellectual property when sharing 3D designs online, online content	To explain that selection can control the flow of a program I can identify examples of conditions in the real world I can use a variable in an if, then, else statement to select the flow of a program I can determine the flow of a program using selection **Lesson 4** To update a variable with a user input I can use a condition to change a variable I can experiment with different physical inputs I can explain that checking a variable doesn't change its value **Lesson 5** To use an conditional statement to compare a variable to a value I can use an operand (e.g. qG=) in an if, then statement I can explain the importance of the order of conditions in else, if statements I can modify a program to achieve a different outcome **Lesson 6** To design a project that uses inputs and outputs on a controllable device I can decide what variables to include in a project	

					ownership, and respectful feedback when reviewing and collaborating on digital designs.	I can design the algorithm for my project I can design the program flow for my project □ Controllable Device □ Emulator □ Selection □ Condition □ Operand E-Safety Thread Suggestion: Discuss Smart Tech, the 'Internet of Things' (IoT), location tracking, and how physical devices collect and transmit environmental and user data safely.	