Long Term Plan
KS3: Computing

Groveside School

Year 7

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit:	Clear Messaging in Media	Networks from semaphores to the internet	Using media – Gaining support for a cause	Programming essentials in Scratch – Part 1	Programming essentials in Scratch – Part 2	Modelling data - Spreadsheets
Skills, Knowledge and Learning	This unit is designed to build upon learners' experience in key stage 2. It requires learners to use a range of different skills across several pieces of software. Learners will work between different applications to create a poster and slides on a given theme. Learners are given clear tasks for which they need to first plan and then implement a solution.	Pupils will explore the vast field of networks in this unit. Pupils will learn to develop an understanding of the growth of networks, their development over time and impact e.g. (Netflix/Google/YouTube/Google Maps etc). Pupils will learn about how data is transmitted across networks, and the required hardware including both wired and wireless transmission. Further to this pupils will study the internet, its capabilities and power to make things better. This overall helps to develop pupils technology awareness, and evaluations and applications of technology skills	In this unit pupils will develop their digital literacy skills and knowledge of information technology. Pupils will learn to fluently apply these skills to create a blog post applying developed formatting skills. Pupils will also learn about copyright laws when using images and the reliability of information across the broad internet platform. This will help to develop pupils reasoning and analysis skills.	This unit aims to build pupils knowledge, confidence and skills around programming. The unit is built to allow pupils with no prior experience to access, with room for expanding knowledge for those who have previously programmed. Pupils will learn about sequences, variable, count-controlled iteration and variables as then move through coding and programming tasks, building overall fluency of IT skills, and develop a deeper understanding of the technicalities in the IT world	This unit builds on the prior scratch unit, further advancing pupils programming skills through work on sequence, selection and iteration. Pupils will have chance to develop their problem solving skills and understanding of decomposition moving towards the completion of a large end of unit project. Pupils will continue to learn different programming techniques, evaluate at each step and make effective decisions moving forward	In this unit, pupil will explore spreadsheets in depth. Pupils will learn how to use spreadsheet data to solve quick calculations and will apply this to problems. This includes learning key spreadsheet skills such as SUM, MAX, MIN, AVERAGE to analyse and gain appropriate information from data. Pupils will then learn how to display this data in a range of charts/graphs, using mathematical fluency skills to justify their choices
NC/Qualification Objectives	NC 3.8, 3.9	NC 3.5	NC 3.7, 3.8,	NC 3.2, 3.3, 3.4	NC 3.2, 3.3, 3.4	NC 3.1, 3.7,
Enrichment/ Experiences	- LEGOLAND offer bespoke Curriculum based LEGO Workshops for ages 3-11 covering topics such as Robotics and STEM.					
Curriculum End Point / Goal	- By the end of year 7, pupils will understand how to keep themselves safe online. Pupils will have built knowledge of basic programming and be able to use this to develop their creativeness in the information technology world. Pupils will know the importance and impact of networking and how data can be used within the IT world to great effect					

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Year 8

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit:	Developing for the web	Representations – From clay to silicon	Mobile app development	Computing systems	Media – Vector graphics	Introduction to Python programming
Skills, Knowledge and Learning:	In this unit, pupils will explore the world wide web, looking at the components that make it up. This will include pupils developing knowledge of HTML and CSS, will pupils enhancing their research and evaluation skills. Pupils will learn to create their own website, developing their fluency of IT skills becoming responsible, confident and creative users of information technology.	This unit builds pupils knowledge around the different layers of computing systems. It explores the internal programs and operations systems alongside the external components. Pupils will develop analysis skills as they unpick computer systems, before developing their knowledge of artificial intelligence, it's application and the discussions around the moral/powerful impact of AI.	This unit helps to build pupils programming fluency, consolidating key IT development skills through gaining knowledge on mobile app creation. Pupils will use research skills to collect data and design their own app, write their own code for the app, evaluate, and publish. This helps pupils enhance a range of IT based skills, calling on a range of learning to apply effectively. This continues to promote pupils' creativity with information and communication technology.	In this unit, pupils will explore how computers record, process and transmit information through binary code. Pupils will learn what binary digits are, learn to measure binary code. Pupils will do this through tasks around encoding, transmitting, and decoding. This will help students to analyse problems in computational terms and develop their understanding of fundamental principles and concepts of computer science.	In this unit pupils will learn about vector graphics and the formation of logo's, illustrations, and icons. Pupils will be provided with the knowledge to create their own. This will involve pupils using computational thinking to apply a series of basic shapes using IT to form more complex intricate shapes using key skills such as union, difference and intersection. This will develop pupils knowledge and skills around manipulations and combinations of objects using IT tool.	This unit introduces pupils to text based programming with Python. Pupils will build upon prior learn skills around programming, developing fluency in use of key skills. Pupils will learn to apply arithmetic operations and live coding within Python whilst continuing to build knowledhe of iteration, randomness and selection
NC/Qualification Objectives:	NC 3.7, 3.8	NC 3.4 – 3.6	NC 3.8	NC 3.6	NC 3.1 – 3.3, 3.8	NC 3.1 – 3.3, 3.6
Enrichment/ Experiences:	- Overworld Fleet - Creative media – advertising and producing media for promoting the school.					
Curriculum End Point / Goal:	- By the end of year 8, pupils will have shown significant developments in their creativity and programming skills. Pupils will have advanced their programming techniques, will have a deeper understanding of the interconnecting components of computer systems and will be able to analyse problems in computational terms. Pupils will be able to evaluate and apply learning to a range of new and unfamiliar technologies.					

Long Term Plan
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Year 9

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit:	Python programming with sequences of data	Media - Animations	Data science	Representations – Going audio-visual	Cybersecurity	Physical computing
Skills, Knowledge and Learning	In this unit pupils will build upon their work in Year on Python programming. Pupils will learn about how data can be represented and processed in sequences such as lists and strings. Pupils will continue to build skills around using operations such as manipulation an entire sequence. Pupil will continue to work on programming techniques to help build pupils application of fundamental computer science linked to the wider world such as the Solar System and Capital cities	Pupils will explore how films, TV, computer games advertising etc have been revolutionised by 3d modelling and animation. Pupils will learn about the process of 3d modelling, developing their creative information technology skills, and the importance of these to produce the media that we see and consume today. Pupils will learn key skills such as modelling, texturing and animating.	This unit helps to drive forward pupils prior learning of data within technology, forming connections between data and its ability to investigate problems and make changes to the world. Pupils will explore how data has been and can be used to identify patterns and trends and bring about positive change. This will help pupils to think deeper about the IT work they are doing and continue to enhance their analysis and evaluation skills when thinking about the ever changing and developing world of IT	Pupils will learn about making digital media such as images and sounds, whilst discovering how media is stored in binary code. This helps to develop pupils' fluency of binary programming skills. Pupils will build upon prior work on composing images out of individual elements, mix elementary colours to produce new ones, take samples of analogue signals to illustrate these ideas and bring these together to form one coherent narrative. This again promotes pupils creativity and confidence with information technology	In this unit pupils will explore cybersecurity. Pupils will learn about the value of their own data and others data and why people may choose to steal it and the methods they may use. The unit aims to promote safety and security of data and information. Pupils will learn about social engineering and other common cybercrimes, identifying methods to protect against attacks, helping pupils to become more confident, safer IT users	This unit enhance pupils programming skills in a new engaging context: Physical computing using the BBC micro:bit. Pupils will learn about components built into the microbit and how to write simple programs that can interact with the physical world. Python programming fluency will be built and programming skills are advanced. Pupils will work together to build a physical computing project. This will develop pupils creative computer technology use, applying a range of fundamental IT concepts.
NC/Qualification Objectives	NC 3.1 – 3.3, 3.6,	NC 3.8,	NC 3.7,	NC 3.6,	NC 3.9,	NC 3.1 – 3.3, 3.6,
Enrichment/ Experience	- **Overworld - Fleet -** provide learning programmes that capitalises on the time young people spend playing videogames, and turn that passion into an effective education - **The Postal Museum London**, explore interactive exhibition galleries packed with intriguing objects, innovative inventions and ground-breaking technology that brings to life 500 years of history through the post.					
Curriculum End Point / Goal	- By the end of year 9, pupils will be confident individuals in their use of information technology and computer systems. Pupils will have secured many of the fundamental principles and concepts that surround programming. Pupils will have confidence and independence in keeping themselves safe and protected online, will know how to spot reliable sources of information, will be able to analyse and evaluate information technology and use this to make effective decisions. Overall pupils will be confident, competent, and responsible users of information and communication technology					