St Peter's Long-Term Overview

Subject: Computing

Year 5	**Topic:** **Scratch**	**Topic:** **The Searchers**	**Topic:** **The Myans –Cross Curricular - Publisher**	**Topic:** **Internet Safety**	**Topic:** **Using Powerpoint to present information**	**Topic:** **Digital Images**
	Concept: Design backgrounds and Sprites and rename Sprites appropriately? create simple controls for movement left and right make a Sprite move down the screen automatically Create a routine that allows my character to interact with other objects. Use simple co-ordinates to make a character move on screen Change timings to alter the speed of the object	**Concept:** Understand different search engines and the services they provide Find answers to specific questions using the internet. Use the advanced search to refine my search results Use boolean operators to refine my results. Identify fact and opinion on the internet Be critical of information found on unreliable websites. Evaluate the reliability of websites using a range of techniques	**Concept:** Using different search engines to collect information on the Myan civilisation**.** Be able to identify reliable information from legitimate websites**.** Use the information to create a report on Publisher.	**Concept:** Identify a spam email; Explain what to do with spam email; Understand why they should cite a source; Explain the rules for creating a strong password; Create a strong password using a set of rules; Know that not everything they see online is true; Explain how to stay safe online; Identify unsafe online behaviour.	**Concept:** To know that computer software (power point) can include a range of media and gives the user a range of options. Image representation "colour by numbers"* To construct a page layout using text and pictures To understand that a presentation needs to have a purpose and needs to be relevant to its audience. To evaluate work and suggest improvements and other uses.	**Concept:** Being able to use a green screen and digital video camera. to create a presentation for a specific audience. To evaluate and make changes to a presentation based on a specific audience.
	Skills: Create sprites and backgrounds according to the game specification. Name sprites Use mouse and keyboard as controls Programme sprites to move independently. Upload images from the internet. Create sound effects.	**Skills:** Collecting information from legitimate sites. Understanding the difference between primary and secondary based websites. Identify different types of images as in high and low resolution. Design their publication appropriately. Upload images Use different search engines to find a variety of information. Omit and add words from searches	**Skills:** Learn about featured templates, . Choose appropriate template to present information.	**Skills:** Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact in the context of identifying and avoiding spam emails. In the context of citing the work of others. In the context of finding out how photos can be altered	**Skills:** Validate information Notes taking Evaluate Sources Organise information Presentation	**Skills:** Continue to manipulate images using an art package Continue to use an iPad to video for a specific purpose Design and create a presentation to show other children Evaluate the suitability of the film and

		Use boolean operators in their searches. Identify fact or opinion from a range of web based sources. Identify the domain of websites to aid in assessing their reliability Examine dates, writing style and cross reference to assess reliability.		Knowing the consequences of not following online safety rules		edit accordingly Use more Sophisticated music software to plan, capture and combine sounds
	Outcome: Learn basic computer programming that enable students to create a game. Creativity Knowledge and Skill Computer design Understand basic programming and algorythms**.**	**Outcome:** Students will discover how different search engines produce differing results and hits, as well as learning search techniques to give them more accurate results.	**Outcome:** To improve student skills on using graphics and shapes and to introduce a new software programme that they can use to present information.	**Outcome:** Create a power-point on on-line safety**.**	**Outcome:** Students should know how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sound as appropriate [for example, desktop publishing, multimedia presentations].	**Outcome:** To create a video linked to their English topic (Street Child) Students will review what they have done to help them develop their ideas.

	Topic: E-Safety	Topic: Programming- Scratch	Topic: Spreadsheets	Topic: SATs preparation	Topic: History of Computers	Topic: LightBot
Year 6	**Concept:** • To know what you can share online. • To understand what a positive digital footprint is. • To know what phishing and scams are • To know how to protect yourself online. • To know how to stand up to others online.	**Concept:** • To know how to work through problems and debug and correct errors in programming. • To know how to design, write and debug programs that control or simulate physical systems. • To know how to solve problems by decomposing them into smaller parts and detecting and correcting errors in alogarithms and programs.	**Concept:** • To know what a spreadsheet is and what it does. • To know what the cells are called. • To know where formulae is entered.	**Concept:**	**Concept:** • understand how computer networks work including the internet; • understand how computer networks can provide multiple services, such as the world wide web; understand the opportunities computer networks offer for communication and collaboration. • understand what a search engine is and how to search using words. • understand how to communicate online • understand the history of computers	**Concept:** • understand the language of directional alogarithms.
	Skills: . • Describe ways to keep personal information private online by using safety	**Skills:** • Create a background and a sprite • To create a single routine for "Control" of players and enable	**Skills:** • To enter data into cells and format it • To add borders to tables. • To enter formulae into a spreadsheet and be	**Skills:**	**Skills:** • To use a search engine to search information on a topic by choosing word order.r	**Skills:** • Write a sequence of instructions in short form.

	tools and privacy settings. • Describe how to find and ask for help if someone feels unsafe online. • Build positive and healthy online relationships and friendships. • Employing strategies to respond to hurtful online behaviour, in ways that keep children safe and healthy. • Identify sources of support that can help friends and peers if they are experiencing hurtful behaviour online.	objects to interact based on sensing of colours. •To create objects that can be collected by players •To add sounds to objects when they are collected. •To create a routine to keep score throughout a game and end the game when a criteria is met. •To use sequence, selection, repetition in programs •To work with variables. •To improve and assess their own and others' programs.	able to use auto sum and average. • To change data in a spreadsheet to answer 'what if...?' questions and check predictions.		• To save webpages and share them safely eg bookmarks and favourites. • To use Powerpoint to present information by using text boxes, adding images and hyperlinks.	•Debug errors in my sequence of instructions. •Write an algorithm. •Debug any problems in algorithms
	Outcome: To keep themselves and others safe online and know how to ask for help when they need it. To understand the consequences of what they share online for now and the future.	**Outcome:** To design, write and debug programs that accomplish specific goals, controlling or simulating physical systems. To solve problems by decomposing them into smaller parts and detecting and correcting errors in alogarithms and programs..	**Outcome:** To create their own spreadsheet, and use formulae and symbols to find answers to questions and make presentation look good.	**Outcome:**	**Outcome:** • To be able to find information on the history of Computers and present on a Powerpoint.	**Outcome:** • sequence instructions from the perspective of another • create their own (appropriate) shortened form of instructions • be able to isolate bugs in instructions • 'checking' algorithms before typing them in

Year 7	**Topic:** **E-Safety**	**Topic:** **Kodu introduction**	**Topic:** **How a computer works and computer history.**	**Topic:** **Scratch – Creating a Pacman style game**	**Topic:** **App Creation**	**Topic:** **App Creation**
	Knowledge/ Concepts: Take notes Online Safety Social networking Research Presentations Evaluation Text, videos, Images and links	**Knowledge/ Concepts:** Creativity Knowledge and Skill Computer design Understand algorythms Programme language	**Knowledge/ Concepts:** What are the main parts of a computer? What is the difference between inputs and outputs? What is an operating system? How does the keyboard work? Relevant people of the computing world. Who was Ada Lovelace?	**Knowledge/ Concepts:** Design, use and evaluate computational abstractions that model the state and behaviour of real world problems, and physical systems. Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions. Understand simple Boolean logic and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers.	**Knowledge/ Concepts:** Identify when a computer task needs to be broken down (decomposition) Impliment and customise the graphical user interface to meet the needs of the programmer. Use a block based programming language to create a sequence. Use user input in an event driven programming environment. Use variables in an event driven programming environment. Update the app to display the uses score. Start your own app project.	**Knowledge/ Concepts:** Use user input in a block based programming language Use decomposition to break down your app into more manageable steps. Include variables in your app project. Use user input in a block based programming language to include sequencing and selection. Swap apps with another group and test each out. Leave feedback giving constructive comments on errors and areas for improvement.
	Skills: Usewww.thinkyouknow.co.uk	**Skills:**	**Skills:**	**Skills:**	**Skills:**	**Skills:**

	Make notes on social networking and cyber bullying. Information on how young people can stay safe online. Choose one other aspect to research from the page. Identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	Understand the concepts of creating a basic game. Learn how to create a world and control characters. Learn how to create pathways and scoring systems. Learn how to clone objects. Learn how to use timers in Kodu. How you can include creatables in Kodu.	Be able to identify the main parts of a computer. Explain the purpose of each computer part. To understand the importance of the computer parts and their necessity to computer function. Identify the differencies between inputs and outputs. Gain knowledge on relevant people of the computing world. Be able to compare different operating systems. To learn the functions of a keyboard.	Understand how to use algorythims. Design and create their own game. Improve game design vocabulary. Independently, create another level to their game. Be able to debug game problems. Test out eachothers games and give constructive feedback.	Develop skills in block based programming. Understand the process of event driven programms. Develop skills in debugging and solving problems. Be able to use the correct terminology when referring to app development.	Understand that block based programming can only be done in sequence. Understand the importance of decomposition and using it in their approach to app devellpment. Developing app creation skills to create more app's independently.
	Outcome: Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns	**Outcome:** Understand key algorythms that reflect computational thinking. Design and develop modular programmes that uses procedures and functions.	**Outcome:** To understand the important parts of a computer and how a computer works. Gain knowledge on the history of computers and the people who invented them.	**Outcome:** Be able to design their own game and understand how to correct errors.	**Outcome:** Understand the process of app development.	**Outcome:** Create their own app on code.org

Year 8	**Topic:** **E-safety, Security and Digital Footprints**	**Topic:** **JavaScript**	**Topic:** **How data is represented in computers - Binary**	**Topic:** **Web Design - Html**	**Topic:** **Introduction to Python**	**Topic:** **Project Based Game**
	Concept: Understand simple Boolean logic and some of its uses in circuits and programming; Understand the hardware and software components that make up computer systems, and how they communicate with one another and other systems. Understand how instructions are stored and executed within a computer system; Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy, recognise inappropriate content, contact and conduct and know how to report concerns.	**Concept:** Design, use and evaluate computational abstractions that model the state and behaviour of real world problems, and physical systems. Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions. Understand simple Boolean logic and some of its uses in circuits and programming Understand how instructions are stored and executed within a computer system; understand how date of various types can be represented and manipulate digitally, in the form of binary digits. Undertake creating projects that involve	**Concept:** Understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers. Understand how date of various types can be represented and manipulate digitally, in the form of binary digits. Understand how numbers can be represented in Binary.	**Concept:** Design, use and evaluate computational abstractions that model the state and behaviour of real world problems, and physical systems. Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions. Undertake creating projects that involve selecting, using and combining multiple applications preferably across a range of devices, to achieve challenging goals.	**Concept:** Design, use and evaluate computational abstractions that model the state and behaviour of real world problems, and physical systems. Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions.	**Concept:** Design, use and evaluate computational abstractions that model the state and behaviour of real world problems, and physical systems. Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions. Understand simple Boolean logic and some of its uses in circuits and programming;. Undertake creating projects that involve selecting, using and combining multiple applications preferably across a range of devices, to achieve challenging goals. Create, re-use, revise and re-purpose digital artefacts for a given audience with attention to

		selecting, using and combining multiple applications preferably across a range of devices, to achieve challenging goals.				trustworthiness, design and usability. Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy, recognise inappropriate content, contact and conduct and know how to report concerns
	Skills: Research why LAN (Local area networks) are different to the internet Create a research document on the following. Use www.thinkyouknow.co.uk to aid your research further. Explain that the document is going to explain what goes on in the digital world around us and how to stay safe with it. What are your rights and responsibilities in a digital world? How can you use social networks safely and responsibly? What should you avoid doing? Share presentations to class. Embed images and videos into their presentations where ever it is possible.	**Skills:** Understand the hardware and software componants that make up computer systems. Understand how instructions are stored and executed in computer systems. Recodnise inappropriate use and how report it accordingly. Continue to work through the code academy course at children's own pace. If someone becomes stuck on something that is not easily resolved by the teacher then share with the whole class and problem solve together. Share work at the end of the meeting.	**Skills:** Learn how to use binary to design and edit computer programms. Understand binary sequencing. Understand different coding systems.	**Skills:** Design their own Webpage. Understand several key algorithms that reflect computational thinking. use logical reasoning to compare algorithms. Learn different types of syntax and use them to develop web pages further.	**Skills:** Understand basic programming skills in Python. Declare a variable; Write comments within Python.	**Skills:** This term the brief is to create a game for year 5 in groups of 3 or 4. They may use any of the different programming languages that they have come across scratch, kodu, python and javascript. It needs to: Be programmed Be suitable for year 5 Have an instruction booklet Have a game front cover Have an advert to advertise their game Have undergone thorough testing. Optional extras: Have an interview for a one show style program about the launch of your new game. Create a supporting website Create a supporting app.
	Outcome: To understand how a computer works and the communication system that it uses to carryout actions.	**Outcome:** To be able to do basic computer programming using JavaScript.	**Outcome:** To understand different types of coding systems.	**Outcome:** Create your own webpage using html 5. Model finding the Html traning webpage. And begin the training.	**Outcome:** To understand and use algorythims to create a webpage.	**Outcome:** Be able to create a game using code.org

	Understanding how to work safely in a computerised world.			There are 6 lessons of training. Create your own Webpage.		