St. Aidan's Catholic Academy
Y8 ICT Curriculum Map
Overview

Half Term	Curriculum Content	Suggest Reading or Extension Activities
Autumn HT1	**Game control – (HT1)** Game control – Scratch programming Build skills use blocky code and develop own game using programming	https://scratch.mit.edu/
Autumn HT2	**Spreadsheets (HT2)** Modelling – using spreadsheets Develop skills to use formulae, update calculations and create graphs using Microsoft Excel	
Spring HT3 Spring HT4	**Computer theory and DTP (HT3)** **Computer theory and DTP (HT4)** Computer Theory and DTP Knowledge developed on input/output devices, Inside of a computer Binary code Wireless networks Network topologies Health and safety using IT Computer Misuse Act	https://www.binaryhexconverter.com/binary-to-decimal-converter http://www.thewindowsclub.com/set-up-wireless-network-connection-windows https://www.techopedia.com/definition/ 26186/wireless-network http://www.bbc.co.uk/schools/gcsebitesize/ict /implications/3healthandsafetyrev1.shtml https://www.legislation.gov.uk/ukpga/1990/18/contents http://www.bbc.co.uk/schools/ gcsebitesize/ict/legal/ 1dataandcomputermisuserev1.shtml
Summer HT5	**HTML and internet safety (HT5)** HTML – Computer programming Develop skills and knowledge to create a web page using HTML programming. Create a web page on Internet safety Ensure students are aware how to stay safe online, how to prevent cyber bulling, digital footprints	https://learn.playto.io/html-css/lesson/0
Summer HT6	Half Term 6 Develop own project to create a web page using skills developed using HTML *Building web pages from briefs to meet criteria*	https://learn.playto.io/html-css/lesson/0

Learning Concepts

Topic	Emerging	Developing	Secure	Mastering
Autumn 1 Krakatoa	• I can find information on the internet about Krakatoa. • I can create a static banner using basic software tools. • I can create a master slide which includes buttons and a banner. • I can create a presentation by adding text and images. • I can create a movie that includes images, export it and insert it into my presentation. • I can use hyperlinks to create a quiz. • I can assess my work and state good points and not so good points.	• I can validate information found online discussing reliability and validity. • I can create an animated banner that combines text, an image(s) and a shape(s), using several software tools. • I can create a master slide that suits the theme of the project and includes buttons, containing text and images, and an animated banner. • I can create a presentation to suit the theme of the project by adding text and images that have been edited. • I can create a movie, suitable for purpose and audience, that includes text and images, export it and insert it into my presentation. • I can implement an interactive quiz using predefined code provided for me. • I can assess my work stating good points and not so good points, give improvements and make some refinements.	• I can use different search criteria like: AND, OR & NOT to search the internet. • I can create an animated banner, suitable for purpose; that combines text, an image(s) and a shape(s), using several software tools including correct use of time frames. • I can create a master slide that suits the theme of the project and includes buttons, containing text and images, hyperlinked to the correct slides and an animated banner. • I can create a presentation to suit the theme of the project by adding text and images that have been edited using tools such as blend and transparency or cut out studio. • I can create a movie that matches the theme of the project and is suitable for purpose and audience; that includes titles, credits, captions, images, transitions and sound. • I can implement an interactive quiz editing code provided for me, e.g. changing questions and answers, code will be annotated to show understanding. • I can critique my work fully and	• I can use additional search criteria like: "", *, ?, ~ to search the internet and use advanced search tools. • I can create a professional animated banner, suitable for purpose, using advanced tools such as onion skinning and changing frame rates to improve flow, explaining the benefits of these tools. • I can create a professional master slide, suitable for purpose and audience that suits the theme of the project and includes buttons, containing text and images, hyperlinked to the correct slides and an animated banner. • I can create a professional presentation to suit the theme of the project by adding text and images that have been edited using various photo editing tools in Serif PhotoPlus to edit images – layers, juxtaposition/superimposition for example, adding text to images and using advanced tools to enhance the photo. • I can create a movie, that matches the theme of the project and is suitable for purpose and audience, that includes titles, credits, captions, images, transitions and sound (Video is optional),ensuring it runs smoothly and pace is correct. • I can implement an interactive quiz and independently add and code questions of my own, testing and refining my work and code as it progresses, all code will be fully annotated to show understanding. • I can use feedback from others to improve my work further and I can write a full evaluation discussing good points and not so good points, refinements and further improvements if I was to do a similar task in future.

			make improvements and refinements based on this to achieve a higher level.	
Autumn 2 APP Building	• I can list the uses and features of two APPs. • I can state the purpose and aims of an APP I am to create. • I can create designs to show how an APP I am to create will look. • I can create an APP from designs I have planned using a sequences of instructions and I understand why I must be precise with these, code used may be predefined code from tutorials. • I can test the APP I have created for functionality and document the results. • I can use evaluation criteria to evaluate how fit for purpose the APP is that I have created. • I can suggest improvements I think could be made to the final APP.	• I can explain the uses and features of two APPs. • I can explain the purpose and target audience of an APP I am to create with the aims and some suggestions of how the APP will be developed. • I can create designs for each screen of an APP I am to create showing a consistent style with annotations to explain what should be on each screen, e.g. colours, buttons, inputs, outputs, text, images, etc. • I can create an APP from designs I have planned developing a sequences of instructions and using sub routines where appropriate, I understand why I must be precise with these, code used may be predefined code from tutorials but will have a commentary throughout the code to show understanding. • I can test the APP I have created for	• I can explain the uses and features of two APPs discussing how the features affect the usability and intended use by the audience. • I can explain the purpose and target audience of an APP I am to create with the aims and give details to show how the user requirements of the APP will be met. • I can create designs for each screen of an APP I am to create and then refine them to improve them using feedback from others. Designs will be clearly annotated to include all relevant elements, inputs and outputs and with reference to software tools to be used. • I can create an APP from designs I have planned developing sequences of instructions and using sub routines where appropriate, I understand why I must be precise with these, code used will contain original code that meets the user requirements and purpose and have a commentary throughout the code to show understanding. • I can test the APP I have created for	• I can give a detailed description of the purpose of two APPs including advantages and disadvantage and inputs and outputs. • I can give a detailed description of the purpose and target audience of an APP I am to create with the aims describing fully how the user requirements of the APP will be met and any constraints there might be. • I can create a refined set of designs for each screen of an APP I am to create, fully annotated to include all relevant elements, inputs and outputs and with reference to software tools to be used. I can justify design decisions and create an alternative solution if required. • I can create an APP from designs I have planned developing sequences of instructions, using sub routines and advanced features where appropriate, I understand why I must be precise with these, code used will contain several pieces of original code that meets the user requirements and purpose and have a detailed commentary throughout. • I can test the APP I have created for functionality and purpose, ensuring it meets the user's needs; solve any problems and document all results, including screen print evidence before and after improvements. • I can use evaluation criteria to evaluate how fit for purpose the APP is and gather audience/peer feedback on the usability of the APP and review the overall quality of the code used

		functionality and purpose and try to repair any faults, documenting the results. • I can use evaluation criteria to evaluate how fit for purpose the APP is that I have created explaining how it meets user requirements. • I can identify improvements that could be made to the final APP and develop and refine to improve its quality using more information from different sources.	functionality and purpose, ensuring it meets the user's needs; repair faults and document the results, including screen print evidence before and after improvements. • I can use evaluation criteria to evaluate how fit for purpose the APP is and gather audience/peer feedback on the usability of the APP. • I can explain improvements that could be made to the final APP along with peer feedback gathered and develop and refine to improve explaining why and any constraints too.	• I can discuss improvements that could be made to the final APP along with peer feedback gathered and develop and refine to improve explaining why and any constraints, justifying any changes to initial designs and code and making recommendations for further improvement.
Spring Python	• I can identify what Python is and practice a simple Python program in Interactive mode using the input and print functions. • I can identify what a variable is and assign data to a variable. • I can use mathematical operators in Python and add comments to a program. • I can convert a number to integer format using it in an IF Statement and add comments to a program. • I can write pseudo code with support and discuss	• I can identify what Python is and write, save and run a simple Python program in Script mode using the input and print functions. • I can use the input function to capture user input and then output the contents of a variable with a string, spotting errors in code and fixing them. • I can create a simple program that performs some calculation on two numbers adding appropriate and useful comments to code that helps readers	• I can identify what Python is and explain the difference between Interactive mode and Script mode and write, save and run simple Python programs in Script mode using the input and print functions, spotting errors in code and fixing them. • I can use the input function to capture user input and then output the contents of a variable with a string, an integer and a float, spotting errors in code and fixing them explaining why they are wrong. • I can create a more complex program that performs some calculation on at least two numbers that have been	• I can identify what Python is and explain the difference between Interactive mode and Script mode and independently write, save and run simple Python programs in Script mode using the input and print functions, spotting errors in code and fixing them explaining why they are wrong. • I can independently use the input function to capture user input, calculate outputs using the int, float and round functions and then output the contents of a variable with a string, an integer, a float and a round, spotting errors in code and fixing them explaining why they are wrong. • I can independently create a more complex program that performs some calculation on at least two numbers that have been assigned to a variable adding appropriate and useful comments to code that helps readers

the various types of errors that can occur within the code • I can explain what a WHILE loop is and what a FOR loop is in programming terms. • I can look at different ways to search an ordered list; a linear search, a random and a binary search.	understand what's happening, spotting errors in code and fixing them. • I can convert a number to integer format and create a simple IF Statement from scratch adding comments to code that helps readers understand what's happening, spotting errors in code and fixing them. • I can write pseudo code and discuss the various types of errors that can occur within the code and the difference between them. • I can create a program to implement a WHILE loop and create a program to implement a FOR loop adding comments to code that helps readers understand what's happening. • I can look at different ways to search an ordered list; a linear search, a random and a binary search and compare these to find out the most efficient.	assigned to a variable adding appropriate and useful comments to code that helps readers understand what's happening, spotting errors in code and fixing them explaining why they are wrong. • I can write a simple piece of code that will convert a number to integer format and create an IF Statement from scratch adding comments to code that helps readers understand what's happening, spotting errors in code and fixing them explaining why they are wrong. • I can write pseudo code for given scenarios and identify various types of errors within a program by successfully debugging and correcting the errors. • I can independently create a program to implement a WHILE loop and independently create a program to implement a FOR loop adding comments to code that helps readers understand what's happening. • I can create a program to search an ordered list using any of the three methods discussed; a linear search, a random and a binary search.	understand what's happening, spotting errors in code and fixing them explaining why they are wrong. • I can write a piece of code that will convert numbers to integer format and independently create IF Statements from scratch adding comments to code that helps readers understand what's happening explaining what a structured program is and spotting errors in code and fixing them. • I can independently write pseudo code for scenarios I choose and identify errors within programs by successfully debugging and correcting the errors. • I can independently create a program to implement a WHILE loop and independently create a program to implement a FOR loop adding appropriate and useful comments to code that helps readers understand what's happening. • I can create a program to search an ordered list using all of the three methods discussed; a linear search, a random and a binary search.

Summer Computer Theory	• I can identify the inputs and outputs of a given computer system. • I can define what a generalised or a dedicated computer system is. • I can identify computer systems that are used in the modern world and list how we would be affected without them. • I can identify what a CPU is and its components. • I can identify the difference between bits, bytes and nibbles. • I can define what RAM and ROM is along with the terms Volatile Memory and Non-volatile Memory. • I can identify a range of different storage devices.	• I can identify the inputs, processes, outputs and storage of a given computer system. • I can define what a generalised and a dedicated computer system is. • I understand how modern world computer systems impact on lifestyle and society and can give examples e.g. Retail, Education, Entertainment. • I can explain the purpose of the CPU in computer systems. • I can convert from decimal to binary and vice versa and can explain why data in computer systems is represented as 0 & 1. • I can explain the need for ROM and the purpose of RAM and how the amount of RAM affects the computers performance. • I can suggest suitable storage devices for given scenarios.	• I can give examples of computer systems identifying the inputs, processes, outputs and storage. • I can define and give examples of generalised and a dedicated computer systems. • I understand how modern world computer systems impact on lifestyle and society and can discuss a wide range of examples e.g. Business, Science, Travel. • I can explain what occurs during the fetch execute cycle and the roles that each part of the CPU perform. • I can explain different storage sizes and convert from one to another. • I can describe Virtual Memory and discuss its benefits and drawbacks. • I can explain why a storage device is suitable for a given scenario.	• I can explain a range of examples of computer systems identifying the inputs, processes, outputs and storage. • I can define and discuss a range of examples of generalised and dedicated computer systems explaining reason why for each. • I can discuss examples of computer systems in several areas of society explaining advantages computer systems may have performing tasks instead of humans or any disadvantages. • I can discuss factors that affect a CPU's speed to carry out an instruction and justify decisions for a chosen specification (Clock speed, Cache and Core). • I can convert from decimal to binary to character using an ASCII table to read and write text and can explain why we need extended ASCII character. • I can discuss what flash memory is and what it is used for, including how changes in memory technologies are leading to innovative computer designs. • I can justify why the device is suitable for the scenario by comparing storage devices.

Half Term	Assessment Tasks
Autumn HT 1	Assessment 1 - Research – fact sheet Assessment 2 – Master slide and banner annotated Assessment 3 – Presentation – annotated code
Autumn HT 2	Assessment 1 – Research of Apps Assessment 2- Designs of App
Spring HT3	Assessment 1– Developed App annotated code Assessment 2 – Testing table with refinements
Spring HT 4	Assessment 1- Print function and user inputs Assessment 2 - Code developed using IF and selection Assessment 3 - Quiz and while loop/counter Assessment 4 – For Loops
Summer HT 5	Assessment 1- input/process/output/dedicated systems Assessment 2 - Computer systems in society Assessment 3 - CPU questions
Summer HT6	Assessment 1- Binary and decimal Assessment 2 – Ram ROM storage devices.

ICT & Computer Science Homework Tasks Autumn Term

Homework 1 – Create a flow chart using various symbols Scratch Homework.
Homework 2 –Spreadsheet homework
Other homework may be given throughout the year to improve work on software programs in order to achieve a higher grade.

ICT & Computer Science Homework Tasks Spring Term

Homework 1 – Research information and collect images to use in the leaflet – DTP homework
Homework 2 – Computer Theory worksheet

ICT & Computer Science Homework Tasks Summer Term

Homework 1 – Complete scenarios on internet safety.
Homework 2 – HTML evaluation

Parents /Carers can help their child by:	Ensuring homework is complete. Practicing skills for ICT and Computing at home.

Useful websites	http://en.wikipedia.org/wiki/Year_Without_a_Summer http://www.windows2universe.org/earth/interior/Krakatoa.html http://www.damninteresting.com/son-of-krakatoa/ http://www.volcanodiscovery.com/krakatau-eruptions.html http://www.theguardian.com/theguardian/2013/dec/19/krakatoa-eruption-eyewitness-1883-volcanoes http://vimeo.com/album/1481779 http://clickamericana.com/topics/events/krakatoas-volcano-erupts-kills-thousands-1883 http://www.history.com/this-day-in-history/krakatoa-erupts http://appinventor.mit.edu/explore/ http://www.appinventor.org/ https://en.wikipedia.org/wiki/App_Inventor_for_Android https://www.python.org/ https://en.wikipedia.org/wiki/Python_(programming_language) https://www.codecademy.com/learn/python https://www.programiz.com/python-programming
Revision Sources and Suggested Reading	As above

Who can I contact?	Head of Department	Miss A Cain
	Subject Teachers	Mrs Johnson Ms Jackson Mrs Hogg