SUBJECT: Computing

NESTON HIGH SCHOOL

KS3 CURRICULUM PLAN 2020-21

KS1 and 2 Knowledge and Key skills

YEAR 7	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	*Networks and Health & Safety*	*E-Safety and Cryptography*	*Programming in Logo*	*Data modelling*	*Computers The Basics*	*Review and improve*
Knowledge	How to access a network, develop understanding of Health & Safety conditions.	Understand how to stay e-Safe when using digital technology Able to discuss Cryptography and the development of Computer Systems.	Able to use the basic concepts of computer programming Design and develop modular programs that use procedures or functions.	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.	Reviewing topics covered during the academic year to identify areas for further development.
Skills	Developing Basic Office Skills in the use of word processing, desk top publishing skills and multimedia presentation software.	Able to decipher different codes avoid, Develop research skills and selecting a secure password.	Able to program using the BBC Microbit App, Programming using drag and drop method to create Loops and Conditional Statements.	Able to use spreadsheet software to enter a variety of formulas and model 'what if?' scenarios. Able to create a variety of effective charts/graphs.	Able to identify hardware and software components, recognise real world input, storage and output devices.	Self evaluation, to be able to use teacher feedback effectively to improve skills and understanding.
Key Vocab	Network, Presentation of work, File Management, Formatting, Trainsitions, Animations	Code, Decipher, Encryption, Enignma Machine	Input, Process, Output, Conditional Statements, Loops, JavaScript Blocks, Variables	Cell, Columns, Rows, Formulas (Max, Min, Sum, Average, Vlookup) Formatting, Charts, Sort	Hardware, Software, Storage, Input, Output, Process	Self evaluation, review, attainment

YEAR 8	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	*E-Safety and User Interfaces*	*Understanding Computers*	*Programming in Small Basic*	*Data modelling*	*Control Systems in Flowol*	*Review and improve*
Knowledge	Understand how to stay e-safe and using technology appropriately Understand how user interfaces have developed and how they help humans interact with technology.	Understand how the different elements of a computer interact and function Understand how computers understand binary. Know about the applications of hexadecimal in computing and how convergence and new technology have impacted the computing industry.	Understand how programming languages input instructions to a computer Understand how computer programming is used in society.	Understand how data can be modelled to predict the outcome of various scenarios Understand a variety of instructions that can be entered into a computer.	Understand how control systems are used in everyday life to make situations more efficient and safer Understand how accurate instructions can be used to program a control system.	Understand how data types, searches and sorts can be used when using databases. Reviewing topics covered during the academic year to identify areas for further development. Topics include: E-Safety, Understanding Computers, Programming, Data modelling and Control Systems.
Skills	Able to research e-safety advice and present their work in an appropriate format. Able to design and create effective user interfaces. Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	Be able to explain how binary and hexadecimal are used in computing and successfully convert decimal numbers into both binary and hexdecimal values.	Able to use programming languages to draw shapes, create procedures, input sizes and use variables.	Able to effectively use spreadsheet and data modelling software to analyse data and predict outcomes Able to test these predictions to check for accuracy.	Able to plan a series of instructions with care to create efficient and safe computerised control systems. Able to use loops, sensors, motors and variables to control outputs.	Understand simple Boolean logic [for example, AND, OR and NOT] 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 Self evaluation, to be able to use teacher feedback effectively to improve skills and understanding. Topics include: E-Safety, Understanding Computers, Programming, Data modelling and Control Systems.
Key Vocab	User interfaces, Navigation, Information, Input controls	Binary, Hexidecimal, Decimal	Procedures, Functions, Variables	IF, Conditional Formatting, Macros, Modelling, Functions, Formulas	Algorithm, Flowchart, Problem Solving, Process, Input, Output, Subroutine	Self evaluation, review, attainment

YEAR 9	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	*E-Safety and Cyber Security*	*Project Work*	*Programming in Python*	*Graphics and Binary*	*Fundamentals of a computer system*	*Review and improve*
Knowledge	Understand how viruses work to affect computers and how to protect computers Understand how data is created and stored, how social engineering works, how hostile scripts can damage files and data and how to prevent data attacks.	Understand how various software applications can be used to attain a set goal.	Understand how programming languages input instructions to a computer Understand how computer programming is used in society	Understand how computer programming is used in society to enhance images, audio and movie files.	Understand how computer systems function, how they are used in real life scenarios and discuss professional standards used in computing.	Reviewing topics covered during the academic year to identify areas for further development.
Skills	Able to research effectively to explain why and how cyber attacks happen and how they can be prevented Know how to spot a scam/virus as well as gain skills in avoiding them or removing them.	Able to use a variety of software to solve set problems after being hired by a client to calculate their businesses finances and develop their public branding. Understand simple Boolean logic [for example, AND, OR or NOT] 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	Able to effectively program using variables, loops, if, else Able to program accurate calculations and use numbers.	Able to use graphics sotware to combine multiple images into one image using layers and make adjustments using photo editing tools.	Able to evidence and explain how computers operate, the legal and ethical implications of using computers and how computers may develop in the future.	Self evaluation, to be able to use teacher feedback effectively to improve skills and understanding.
Key Vocab	Data, Cyber-Security, Scripts, Bots	Planning, Development, Implementation, Brand	Variables, Loops, Programming	File type and size, Bitmap, Vector, Storage layers, Cropping, Cutting, Filters	Elements and Applications, Standards, Legal and Ethical Implications	Self evaluation, review, attainment

Key Knowledge Transfer