Curriculum Overview for Information Technology and Computing - Year 8				
When?	What?	Why?	How?	Support
Autumn Half Term - 1	Programming	Often programming is thought of as an unnecessary skill except for those going into the industry however the skills students learn also include: ● *Perseverance* ● *Problem Solving* ● *Error Checking* ● *Adaptation* ● *Experimentation* ● *Creativity* ● *Decomposition* *...and many more.*	Students are given a chance to work at their own pace through a programming project. Programming in Year 7 would have involved using a program called Scratch. In Scratch you drag and drop blocks with writing inside of them to create the code. Now students will be using Python text based language to make their code. They will learn programming principles such as: ● *Sequencing* ● *Variables* ● *Conditional Statements* ● *Loops*	Programming units can be practiced at home on a variety of different online platforms. These include: ● scratch.mit.edu (revisit Year7 learning) ● pythonschool.net ● learnpython.org ● codeacademy.com ● codecombat.com/play .
Autumn Half Term - 2	Data Representation - Sound	In this theory unit, students will learn about how data is used within the computer systems from the previous unit. Data includes any letters, numbers, symbols, sounds and images. These are all stored on and sent between devices that we all use everyday.	Students should be able to understand the basics about how computer systems store and send data, as well as more technical details. This unit will fall into : ● *File Sizes* ● *Compression* ● *Binary* ● *Sound*	Students often find linking what they have done in lessons to real life difficult. All the units in computing topics are based on knowledge students need to be able to use any digital device effectively, as well as some more technical information. You can support students by showing them how the knowledge they learn in lessons can be seen in life outside of school. In this unit, there are resources available and it is recommended that student listen to podcasts to see how and when effects can be added to extend the appeal of the product

Spring Half Term - 1	**Data Systems**	Data is stored about everything and students will need to start to learn not only how this data is stored and why, but how to keep their personal information safe. In this unit, students will build their skills in using spreadsheets and databases, both of which many workings in the UK will use at some point in their working life.	Students will learn about the Data Protection Act and how to keep their data safe - what companies can store about you and how it can be used positively as well as the negative implications. In addition, students will build skills on Microsoft Excel (Spreadsheet software) and Microsoft Access (database software). This will allow them to: ● *Sort and Filter Data* ● *Create Charts* ● *Create Reports* ● *Understand Structure of Data*	In computing lessons students will be using an 'eBook'. This is an online version of an exercise book and where students make notes, complete work, complete homework and revise from. eBooks can be accessed via *Google Classroom*. There are countless online resources for the use of spreadsheets and the formula learned in the previous unit, looking back at previous learning will guide progress during this unit
Spring Half Term - 2	**App Creation**	More than 90% of all connections on the internet today are made on mobile phones via custom created Apps. It is expected that the mobile app market with grow exponentially over the next couple of years. Companies now spend more on the development of interactive Apps than on website development.	Students will investigate the process of designing, developing and testing their own application, based on a project brief. They will include the following features: ● *Buttons* ● *Data input* ● *Interactive areas* ● *website links*	Students will benefit greatly from understanding why apps are so popular. The should spend time deciding why they use the apps they use and what would happen if these apps were suddenly unavailable. The documenting of idea plans are essential to this unit and development overall. Students who perform best in this unit will be those with the best plans, not necessarily the best ideas.

Summer Half Term - 1	Computer Systems	Students are likely to use computer systems a lot in their everyday lives: from mobile phones, to tablets, to microwaves and music players. Do they actually know how they work, rather than just how to use them? This unit allows students to build a base for the lessons in forthcoming years and gain an appreciation and understanding for the technology that has changed the way we live our lives daily.	This unit is a theoretical part of the curriculum, and lessons will not be spent creating software but learning and understanding the facts about how computer systems work. As part of this unit, students will also learn about how to keep their data safe on computer systems. Topics covered: ● *Hardware and Devices* ● *The CPU (Processor)* ● *Storage/Memory* ● *RAM/ROM* ● *Software*	Understanding that different systems are needed for different purposes is essential for success in this unit. Knowledge of the internal components of a computing system is core to understanding why different computers have different jobs. This website will give a quiz to help understand starting points Quiz site
Summer Half Term - 2	Computational Thinking	The act of solving problems in a logical and efficient manor will be second nature to some students. All problems can be solved using a very specific set of rules. Once those rules are learned, it's a case of practice. ● Decomposition ● Algorithm Writing ● Flowcharts ● Abstraction ● Logic Circuits	Students will investigate how computational thinking can help to solve problems, both real life and digital. They will develop skills to help ensure that data is put through the same process each time to give accurate results. They will create flow diagrams that build consistent and reliable results.	Students will be developing flowcharts and building logic circuits throughout this unit. practice on the following sites will provide a huge advantage: Flowcharts development Digital logic circuits Working through logic puzzles is also a good place to start with this unit