

Curriculum Overview for Information Technology and Computing - Year 8

When?	What?	Why?	How?	Support
Autumn Half Term - 1	8.1 Computer Systems	<p>Students are likely to use computer systems a lot in their everyday lives: from mobile phones, to tablets, to microwaves and music player. But do they actually know how they work, rather than just how to use them?</p> <p>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.</p>	<p>This unit is a theoretical part of the curriculum, this means these 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.</p> <p>Topics covered:</p> <ul style="list-style-type: none"> ● <i>Hardware and Devices</i> ● <i>The CPU (Processor)</i> ● <i>Storage/Memory</i> ● <i>RAM/ROM</i> ● <i>Software</i> 	<p>In each of the boxes below there are different strategies for you to help support students that relate to <i>all learning in school</i>. Each strategy related to the schools '<i>5 Ps approach</i>', we have also added a very important strategy in IT & Computing to the list: Perseverance.</p> <p>Strategy One: Prepare - Preparing for lesson is very important, students should make sure they have completed all homework before the lesson. This should be posted on Show my Homework for students and parents to view at any time. Students can also prepare for the lessons by making sure they are comfortable for the content from previous lessons. Key knowledge sheets can be found on the 'About' tab of Google Classroom.</p>
Autumn Half Term - 2	8.2 Programming	<p>Often programming is thought of as an unnecessary skill except for those going into the industry however the skills students learn include:</p> <ul style="list-style-type: none"> ● <i>Perseverance</i> ● <i>Problem Solving</i> ● <i>Error Checking</i> ● <i>Adaptation</i> ● <i>Experimentation</i> ● <i>Creativity</i> ● <i>Decomposition</i> <p>...and many more.</p>	<p>Pupils 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.</p> <p>They will learn programming principles such as:</p> <ul style="list-style-type: none"> ● <i>Sequencing</i> ● <i>Variables</i> ● <i>Conditional Statements</i> ● <i>Loops</i> 	<p>Python can be downloaded at home for students to practice their coding: https://www.python.org/downloads/</p> <p>Support can be found on the 'About' tab of Google Classroom.</p> <p>Strategy Two: Perseverance - This skills is something that students often lack the confidence to pursue. In computing things often go wrong and the best programmers are never those who do things correctly the first time, they are those who learn from their mistakes. This is something we hope that parents will help students to understand about our subject.</p>

Spring Half Term - 1	8.3 Networking and the Internet	For computer systems to work effectively they must be able to communicate with each other. The internet is the largest form of the internet that everyone will need to purchase and be able to understand in their lives. Networks are smaller and more business centered however students use a network every day at school.	Students will move on from learning mostly about the basics of the internet in Year 7 to more focus on the structure of networks and the materials used to make them. Network security for companies is another learning focus, trying to help students understand more about the threats of cyber criminals to businesses and individuals.	At the end of each unit students will have some time working on 'how to revise' and will be set a revision homework. They should be aiming to find the method of revision that works best for them and help them perform to their best ability in each subject, not just IT & Computing. Strategy Three: Perform - As with every unit students will be tested on their knowledge at the end of each unit. All notes should be written in their eBook and key knowledge sheets on Google Classroom however additional information on each subject can be found on websites such as: www.bbc.co.uk/education/subjects/zvc9q6f www.teach-ict.com/2016/ks3/ks3_home (Login details can be collected from teachers)
Spring Half Term - 2	8.4 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, which many workings in the UK will use at some point in their working life.	Students will build skills on Google Sheets (Spreadsheet software). This will allow them to: <ul style="list-style-type: none"> ● <i>Sort and Filter Data</i> ● <i>Use Formulas</i> ● <i>Create Charts</i> ● <i>Conditionally Format</i> ● <i>Understand Structure of Data</i> 	In students IT & Computing lessons they will be using Google Sheets, this means that students can access the software from home to allow them to look over their work after the lesson, and even carry on working through the worksheets. All work can be accessed via <i>Google Classroom</i> . Strategy Four: Perfect - The third of the 5 Ps is that students should look to check the work they have done in lessons and check their understanding. eBook allow students to check their work anywhere they have an internet connection. To support the students you could check their understanding of the content of their eBook. If they are not sure of anything from the lesson key knowledge sheets are posted on the 'About' tab of Google Classroom.
Summer Half Term - 1	8.5 Data Representation	In this theory unit students will learn about how data is used within the computer systems	Students should be able to understand the basics about how computer systems store and send	Often find it difficult to link what they have done in the lesson to real life. In all the units in IT & Computing topics are based on knowledge

		<p>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.</p>	<p>data, as well as more technical details. This unit will fall into :</p> <ul style="list-style-type: none"> ● <i>File Sizes</i> ● <i>Compression</i> ● <i>Binary</i> ● <i>Images</i> ● <i>Sound</i> 	<p>students need to be able to use any digital device effectively, as well as some more technical knowledge. You can support students by showing them how the knowledge they learn in lessons can be seen in everyday life.</p> <p>Strategy Five: Prioritise - In all units students will be given a grid with all of the knowledge they should be able to demonstrate at the end of a topic. Students can self-assess on this grid by colouring it green (They are happy with this knowledge) or Purple (This is what they need to work on). Any areas they are struggling with should be the focus of their homework and class time.</p>
<p>Summer Half Term - 2</p>	<p>8.6 The BIG Computing Project</p>	<p>In whatever business students end up working in: from Accountancy to Advertising, from Housekeeping to Highway Maintenance, from Nurses to Nuclear Engineers - there will always be new projects being tried and tested.</p> <p>It is important that at whatever part of the process students become a part of they understand and respect the other people in the process and how they products that end up in their bedrooms made it there.</p> <p>Projects are also large parts of many other subjects such as Technology, Music and Art.</p>	<p>Students will be given the basic skills they need to complete their work effectively, as well as time to do their own research to develop their knowledge.</p> <p>The teaching part of these lessons will focus on how to:</p> <p>Analyse - looking at other pieces of work and deciding on a product that they think will be interesting and fill a gap in the market.</p> <p>Design - Planning in detail what they will be creating and how much time they will need to do it in.</p> <p>Implement - Creating the product they have been planning!</p> <p>Test - Ask others to see if the product works/does what they intended.</p> <p>Evaluate - What went well and what would they improve if they had more time.</p>	<p>As with the previous unit students will be assessed by looking at each page of their eBook so it would be beneficial for you to have a look through the work they have done and question students if you believe they could work to a higher standard.</p> <p>The mark scheme is placed at the top of each page so you know what we are expecting from the students.</p> <p>Strategy Six: Participate - In this unit students can use other people in the class to give feedback on what they have created, we encourage students to ask others in the group for help and advice. It is very important that they make the effort to work with others and participate fully in the lessons, as well as in other units during the year.</p>