**Curriculum Intent and rational – Computer Science/ICT**

The aim of the Computing curriculum is to ensure all students:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

The Computing curriculum has been designed to cover the three main areas of Digital Literacy, Computer Science and Information Technology. The students will be introduced to the IT skills they will need to support other subjects across the curriculum and will be introduced to programming, algorithms, some more complex elements of software packages and an understanding of computer hardware and how it works.

Furthermore the Computing curriculum equips students to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. Information Technology ensures that students become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace as active, aware and informed participants in the digital world. We also aim for the students to leave their education here with the skill set to keep their knowledge up to date in the ever changing digital technology landscape.

Assessment in KS3 takes place at the end of each unit. These are summative assessments that test the knowledge of the current unit and previous units covered. The purpose of this is for pupils to retain and build on their knowledge. All assessments are done online, pupils get instant feedback on their results and can go over the questions they need to improve on. This can also help staff address any common misconceptions pupils have.

The KS3 curriculum is split across years 7, 8 and 9 and is made up of the following modules:

**Year 7**

| Module | Content |
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| School email and OneNote | Introduces the pupils to the school email, network and OneNote. Students gain the substantive knowledge of basics of using a school network and sending and receiving emails including attachments, replying and forwarding emails. Pupils are also introduced to OneNote. Students gain the procedural knowledge of how to use their online journals in OneNote. All marking and feedback in the Computing department is done |

| | electronically, pupils are able to upload all homework and classwork tasks for feedback. Pupils have access to their work 24/7 and parents can also check their child's progress should they wish to do so. |
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| Digital Multimedia | Students will gain the substantive knowledge of how to use a variety of software to manipulate and present digital content: data and information. Students create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience. Students will gain the substantive knowledge of awareness for the quality of digital content created and evaluate their work and makes improvements to solutions based on feedback received from peers. By the end of the module students gain the procedural knowledge of how to use Microsoft PowerPoint, Microsoft Excel, Photoshop, Animoto and Audacity |
| Web awareness and E-safety | Students will be introduced to Web awareness and E-safety. Students will gain substantive knowledge of how data travels around the Internet and recognise how search engines find web pages and how to perform effective searches. In addition, students will gain the substantive knowledge of how to keep themselves safe online and be a responsible Internet user. Students will gain the substantive knowledge of the ethical issues surrounding using data online and restricting Internet access. Students gain the procedural knowledge of how to create an E-safety website. Furthermore, students will gain the substantive knowledge of what is meant by the terms Spam, Phishing and Viruses. Students will also gain the substantive knowledge of the main methods to protect against online security threats and be able to recognise the characteristics of a secure password. This unit is further developed where they look at the dangers of social networking and cyberbullying. |
| Scratch | Students will gain the substantive knowledge of programming techniques including understanding writing algorithms and creating games using Scratch. Scratch is a block-based visual programming language. Students gain the procedural knowledge of using Scratch to code their own interactive games. In the process, they learn to think creatively, reason systematically, and work collaboratively — essential skills for everyone in today's society. |

## Year 8

| Module | Content |
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| E – Safety | This unit builds on the unit covered in year 7. Students will gain the substantive knowledge of dangers of social networking websites and cyber bullying (not covered in year 7) and the dangers to their technology such as viruses, worms and Trojans. Students will gain the substantive knowledge of the importance of communicating safely and respectfully online, and the need for keeping personal information private. Students will gain the substantive knowledge of recognising inappropriate content, contact and conduct, and know how to report concerns. Students gain the procedural knowledge creating an advertising campaign including a TV advert, a leaflet and a presentation to the rest of the class about what they have learnt. |

| What are computers | Students will gain the substantive knowledge of basic terminology about hardware and software, the history of computers, the internet and cloud computing. Furthermore, students will gain the substantive knowledge of the difference between hardware and software, and their roles within a computer system. Students are given examples of how data is stored on a computer and shown the function of the main internal parts of basic computer architecture. Pupils have a practical session where they are able to see first-hand the components of a computer.

Students will gain the substantive knowledge of the concepts behind the input, process and output cycle. Students look at the range of digital devices can be considered a computer. Students look at the range of input and output devices and how all software executed on digital devices is programmed. |
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| Flash animation | Students will gain the substantive knowledge of how to use Macromedia Flash to create animations. Students look at drawing tools, motion and shape tweens, using the timeline and layers effectively and adding images, text and timeline effects to their animations. Students gain the procedural knowledge of planning and creating an animation. There is a strong element of making a product which is suitable for the target audience and purpose. |
| Game creation in Kodu game lab | This unit builds on the programming unit in year 7. Kodu is a visual programming language made specifically for creating games. Students will gain substantive knowledge of the fundamentals of games programming using Kodu Game Lab. Using Kodu Game Lab Students gain the procedural knowledge a range of key skills which include drawing and sculpting a world, adding character and objects. The use of When and Do instructions to control characters and objects including the use of paths and pages. Once learners have built their skills they are required to design, create, test and evaluate their own game. |

**Year 9**

| Module | Content |
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| Introduction to python | In this unit students will gain substantive knowledge of how to program using Python. This unit builds on the programming units covered in years 7 and 8. This is a text based programming language. It shows them how to using input and output messages, use variables, data types, if statements and loops in their programs. The main focus of this unit is on getting students to gain the procedural knowledge of process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs and debugging their programs. The pupils' final programs are put into a learning portfolio with evidence of correct running, for assessment purposes. |
| Web Design | Students will gain substantive knowledge of how to use Macromedia Dreamweaver to create a website. The look at what makes a good and not- |

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| | so-good website. They insert text, images, roll over images, hyperlinks, buttons and image hot spots. Students gain the procedural knowledge of creating a website incorporating an animation, students build on their animation skills learnt from the animation unit in year 8. In addition, this unit builds on the skills covered in the year 7 unit Web awareness and E-safety, pupils will have already created a basic website on E-safety. |
| Networks | Students will gain substantive knowledge of networks. They look at network topologies, the hardware and software needed in a network, system tools such as PING and IPCONFIG and what a network administrator does. They also learn about the internet and dangers which can be transmitted over a network such as viruses, Trojan horses and worms. |
| Lake Garda Project | In this unit the students perform research into the area surrounding Lake Garda in Italy. Students understand what a consistent house style is, they plan a house style and content for several different types of documents for a travel agent. Students are able to use a desktop applications to produce a range of documents.<br><br>This unit covers a multitude of skills including performing research, teamwork and creating a variety of documents and a TV advert. Students gain the procedural knowledge of the target audience and purpose and the development life cycle as they will plan, create and evaluate each other's' work and make subsequent improvements to their work. |