The Heathland School
A Mathematics and Science College

Key Stage 3 ICT and Computing

Introduction
The Heathland School Programme of Study for ICT and Computing allows students to flourish in both disciplines. Students have access to child-friendly programming software, as well as textual programming (Python). However, more traditional ICT topics, such as database and spreadsheet, and more multi-media-based topics, such as web design or animation, are also covered. Both of these subjects enable students to develop their problems solving skills, as well as their creativity, and allow them use a wide range of software in the process.
It is important to ensure that the students become digitally literate for the modern world and learn to be in control of the digital devices, so they can enhance their lives.

The Key Stage 3 Scheme of Work allows the student to take one of several paths depending on what suits their needs best. We offer a Certificate in Interactive Media (an equivalent to GCSE ICT) and GCSE Computer Science.

Year 7

Autumn Term	Spring Term	Summer Term
• Considering **e-safety and the learning environment** lets the students to learn to use technology safely, respectfully, responsibly and securely. • **Hardware and software theory** enables students to understand the components that make up computer systems, how they communicate with other systems. • **Binary and algorithms** introduces the student to find out how data are physically stored on computers and how to take a problem and divide it into sub-problems.	• **Programming** allows students to create a Pac-Man game using programming structures such as selection and repetition; • **Introduction to digital images** allows the student to find out how data are physically stored on computers; • **Using formulas in spreadsheets** gives the students the opportunity to create a simple model for a problem and adapting a model to solve a different problem. **Programming assessment**	• **Digital images and animation** students develop skills in creating digital graphics and use create animations in graphics software and learn theory about bitmap and vector images; • **Converging technology** looks at the development of technology to allow the student to create, re-use, revise and re-purpose digital artefacts for an audience with attention to trustworthiness, design and usability. **End of year exam covering all topics**

• **Flowcharts** gives students the opportunity to take a problem and divide it into sub-problems and display this as a diagram; **Written assessment covering e-safety and the learning environment**		

Year 8

Autumn Term	Spring Term	Summer Term
• **Law and Ethics in ICT** where the students debate current ethical and legal issues including such topics as image manipulation, peer pressure ,targeted advertising, environmental issues, copyright and data protection; • Using **HTML & CSS** the students create a website to help them understand how www consists of data files displayed as web pages that are created using HTML. **Assessment on HTML tags**	• **Human Computer Interface (HCI)** allows the collection and analysis of data for the student to develop their own HCI for a known user; • **Operating Systems theory** enables students to understand the components that make up computer systems, how they communicate with other systems. • **Networking** enables students to understand the components that make up computer systems, how they communicate with other systems. **Assessment on Networking**	• **Introduction to text based programming** where the students will work with operators and data types to create programs that can input, process data and output information, using structures as searching and sorting. Also students will examine Boolean Logic. • **Creating a movie about identity theft** the student to uses sound, video and images to undertake a creative project that involves selecting, using and combining multiple applications across a range of devices; • **Digitising sound theory** is an opportunity for the student to find out how data are physically stored on computers. **End of year exam covering all topics**

The Heathland School
A Mathematics and Science College

Year 9

Autumn Term	Spring Term	Summer Term
• **Programming in Python with flow charts**, allows the student to experience how elements of real life can be represented in programming, use procedures and functions, and test and improve programs; • **Creating a web site** to a client brief, so the student can develop solutions for problems that are described by someone else. **Written programming assessment**	• **Using complex formulas in spreadsheets** lets the student to create a simple or a detailed model to solve a complex problem; • **Data representation & Boolean logic** develops a student's understanding of the use of Boolean logic (AND, OR & NOT) • **Bitmap and vector image theory** facilitates the student to find out how data are physically stored on computers; • Using **Binary, denary and hexadecimal** to carry out simple conversions and additions. **Assessment on data representation including binary**	• **Databases** facilitates the creation of (relational) databases and searching of them to produce specific outputs; • **Introduction to Logic Gates** using Boolean logic. • **Interactive website design** enables the student to create, re-use, revise and re-purpose digital artefacts for an audience with attention to trustworthiness, design and usability. • **iMedia (ICT)/Computer Science –** students are given the opportunity to develop skills required for their chosen GCSE either developing their vector graphic design skills or coding skills to solve a problem. **End of year exam covering all topics**