Computing Curriculum Intent

Department Computing: WHSG Computing department's approach to the curriculum is to develop an understanding of the importance of computing and its impact on the world. We want our students to have skills for life. The curriculum is an integrated and holistic approach that will equip our students with the tools necessary to appreciate the implementation of computational technology to the current world and its future developments. It will encourage and develop a safe and confident approach to Computing and ICT. The curriculum design aims to maximise opportunities. Our intention is to allow our students to value the application of Computing as a major part of life and its influence on real-life decisions thus being able question the moral, ethical and human effects of this on society. We also recognise the wider interests of students and therefore facilitate the appropriate use of Computer devices both in school and at home.

By the end of Key Stage 3 our students will know:	By the end of Key Stage 4 our students will know:	By the end of Key Stage 5 our students will know:
1. How the impact of computational devices will affect their way of life now and in the future 2. How to use software across different subject areas effectively both in school and at home 3. How to problem solve and use the tools available to produce an appropriate solution 4. Be able to identify key features of a computer and its' function 5. How a basic computer system works regardless of whether it is portable or desktop 6. How to code in three different languages and understand how they can be utilised for different needs along with the language specific programming concepts including number bases 7. The cost to society both morally and ethically by the development of computational devices 8. Key terminology associated with computing and their meanings 9. How to use computational devices safely and the potential dangers and risks present both online and physically through prolonged use	1. Fundamentals of algorithms - How to design algorithms using key computer science techniques such as abstraction and decomposition. They should be aware of the efficiency of algorithms and the different types of algorithms used to search and sort data. 2. Programming – the concept of data types and be able to understand and use these appropriately. They should be aware of different programming concepts including (nested) selection, iteration and subroutines and high level and low-level languages. Students to learn the concepts of databases and apply retrieval and insertion techniques to such databases. 3. Fundamentals of data representation – to understand the use of number bases and manipulation of binary and conversions. They should be aware of character encoding and the uses for these including image and sound representation along with data compression its' need. 4. Computer systems - to understand hardware and software and the use for Boolean logic. To understand the concept of system architecture and the type of software classification 5. Fundamentals of computer networks – to be aware of the how networks function and can send receive data efficiently and how they are set up 6. Fundamentals of cyber security – to understand the different types of encryption and the necessity of these more so as technology is changing 7. Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy	• Computer systems component (01) contains the majority of the content of the specification and is assessed in a written paper recalling knowledge and understanding. • Algorithms and programming component (02) relate principally to problem solving skills needed by learners to apply the knowledge and understanding encountered in Component 01 1. The characteristics of contemporary processors, input, output and storage devices. 1.1 Components of a computer and their uses 2. Software and software development 2.1 Types of software and the different methodologies used to develop software 3. Exchanging data. 3.1 How data is exchanged between different systems 4. Data types, data structures and algorithms. 4.1 How data is represented and stored within different structures. Different algorithms that can be applied to these structures 5. Legal, moral, cultural and ethical issues 5.1 The individual moral, social, ethical and cultural opportunities and risks of digital technology. Legislation surrounding the use of computer

	8. *Aspects of software development – design and implementation of programming*	6. *Legal, moral, cultural and ethical issues.* *6.1 The individual moral, social, ethical and cultural opportunities and risks of digital technology. Legislation surrounding the use of computer*
	9. *Programming project - students will develop their skills in coding and apply the techniques learnt in previous sessions*	7. *Problem solving and programming.* *7.1 How computers can be used to solve problems and programs can be written to solve them (Learners will benefit from being able to program in a procedure/imperative language and object-oriented language.)*
		8. *Algorithms.* *8.1 The use of algorithms to describe problems and standard algorithms*
		9. ***NEA*** *- Learners will be expected to analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The underlying approach to the project is to apply the principles of computational thinking to a practical coding problem. Learners are expected to apply appropriate principles from an agile development approach to the project development.* *9.1 Analysis of the problem* *9.2 Design of the solution* *9.3 Developing the solution* *9.4 Evaluation*

At WHSG our curriculum intent is ambitious but always inclusive, composed of powerful knowledge and cultural capital, coherent and well-sequenced, and broad only specialising when necessary