Computer Science and IT Curriculum Intent

To develop students' computational thinking and problem-solving abilities, equipping them with the skills required to be successful in their future careers. We want students to build resilience and become creative, critical thinkers who can apply their skills to any challenging situation. Our broad and balanced curriculum is designed to equip students with the skills and understanding to live and work in a technological world. This includes developing students **Digital Literacy**, building skills using **ICT** and the creation of computer programs for **Computer Science.**

To develop students' knowledge, skills and understanding through exposure to key computational concepts. The Computing curriculum has been designed to ensure learners have sufficient knowledge to stay safe online, understanding how computers work and be confident when using them. Students develop into resilient learners who can effectively solve problems and recover from mistakes.

Implementation

The units of study at KS3 give a basis of knowledge, skills and understanding to allow students to progress onto the KS4 GCSE or BTEC course. We aim to develop all students into effective practitioners in the workplace who are prepared for the demands of Computing and ICT in the world today.

Starting in Year 7, students are introduced to the basic ICT skills they will need to support other subjects across the curriculum including an introduction to the computer systems used at All Hallows: the school network, Office 365, Satchel One and OneNote. The core constructs of programming are introduced using game engines and programming in Small Basic.

Throughout Year 8, students will continue to build upon the skills they developed in Year 7. Programming is taken to the next level with the introduction of textual languages. Data storage and the binary number system are explored as well as web development and the creation of a mobile application.

In Year 9, we continue to develop students' programming and computational thinking skills in preparation for choosing KS4 options. We also explore topics such as cybersecurity, how binary is used to represent various types of data, the visualisation of datasets and animation.

GCSE Computer Science

At Key Stage 4, the course builds on the knowledge, understanding and skills established during years 7 to 9. There is a heavy focus on programming skills and students are given the opportunity to experiment with a variety of languages and activities. Students revisit theory already covered in the form of written and multiple-choice topic assessments. More theory units are introduced not only to allow for a solid basis of understanding, but also to engage learners and get them thinking about real world application. Theory units follow the Edexcel specification.

BTEC Digital Information Technology

The DIT course consists of three components that give learners the opportunity to develop broad knowledge and understanding of the digital sector and specialist skills and techniques in project planning, designing user interfaces

and manipulating and interpreting data. Students develop their technical skills in preparation for the coursework and exam units.

A Level Computer Science

The Key Stage 5 curriculum builds upon knowledge gained during KS4 and provides the technical knowledge and experience required to progress into higher education.

The aims of the A Level qualification are to enable learners to develop: an understanding of and ability to apply the fundamental principles and concepts of computer science including abstraction, decomposition, logic, algorithms, and data representation; the ability to analyse problems in computational terms through practical experience of solving such problems including writing programs.

BTEC Extended Certificate in Information Technology

Students can opt to study the BTEC Extended Certificate in Information Technology where they will create and plan a social media campaign; create and develop a website using HTML and CSS; develop a fully normalised relational database and evaluate the effectiveness of IT systems and make justified recommendations for further developments and future actions.

The KS5 curriculum intends that students should adopt high aspirations and that most should aim to progress onto university or higher-level apprenticeships.

Impact

The curriculum plan allows for the teaching of theory followed by application of the theory in the form of practical lessons and homework. The curriculum plan includes cross-curricular links for literacy in the form of key terms and subject specific vocabulary, which are included in lesson presentations. Spelling tests are added to Show My Homework to re-enforce learning from the lesson. As Computer Science has close ties to Mathematics, numeracy is also a fundamental part of activities. Lessons contain differentiated activities for students to complete that are in line with the lesson Learning Objective and Success Criteria.

The impact of following these subject protocols is that students enjoy a familiar learning experience and know what is expected of them in each lesson. Formative assessment is ongoing during projects and programming tasks, and summative assessment is used during end of topic assessments. This allows students to know how well they are working and provides them with the knowledge of how they can achieve their full potential.