

NHGS – Computing - Curriculum Intent, Implementation and Impact

Intent (Aims and purpose)

We aim to create the very best Computer Scientists. We challenge students to think, act and speak like those working in the field would. We do this by ensuring our students use terminology relevant for the workplace and gain practical knowledge of software used in industry. During their time at NHGS they will observe through research and investigations how systems have been developed in the real world. The students will evaluate good and bad examples on the methods used by organisations to change or implement new systems. The teaching staff in the ICT/Computing will communicate with students using modern office tools such as email and cloud computing. The students will learn to respond in a timely professional manner.

Our curriculum at NHGS goes far beyond what is taught in lessons, for whilst we want students to achieve the very best examination results possible, we believe our curriculum goes beyond what is examinable. As a department we encourage trial and error and allow the students to learn from their mistakes by evaluating and improving work. By making mistakes, evaluating and then creating improved versions of algorithms or programs students will build confidence and resilience in their attitudes towards their work at NHGS.

Our curriculum in ICT/Computing forms a backbone to our ethos statement. Examples of how our curriculum supports the ethos statement are many and varied in Computing. Students will be creative when solving problems by designing efficient algorithms. They must demonstrate a structured logical method of working. Students must enquire and evaluate their algorithms to justify their effectiveness and efficiency. Students will learn to be mindful about the information they share personally and also investigate and discuss the use of information within an organisation or country. Teachers in the Computing department will be professional and courteous to demonstrate and expect mannerly behaviour and communication.

As a knowledge engaged curriculum we believe that knowledge underpins and enables the application of skills; both are entwined. As a department we define the powerful knowledge our students need and help them recall it by using a variety of teaching styles and methods. Students have access to the Google Classroom where all their lesson content and tasks are stored. This keeps all the lessons and topics in the order they were taught and students can easily look back and find previous resources. Students have the opportunity to see all the presentations that were demonstrated during class time. Lessons will also make use of videos, worksheets and eBooks. Students have the opportunity to present work in a variety of ways from written documents to multimedia videos.

We build the Cultural Capital of our students by discussing the moral and ethical impact of technology for example the storing and distribution of personal data and the wide spread use of tailored marketing. They will also investigate the environmental issues surrounding energy use within data centres and the waste products from hardware when it is disposed in landfill. With the worldwide focus of artificial intelligence this area of study is going to play an important role in our modern world and software engineers need to be prepared for the responsibility placed upon their shoulders.

Further rationale behind our curriculum design includes breaking down the topics of ICT and Computing. In the real world there are hundreds of very different careers relating to ICT, Computer Science and Technology. Students with a Computing degree have the choice to follow different paths and our curriculum is designed to provide experience, knowledge and skills to enable students to evaluate the breadth of opportunities available to them when they leave full time education.

Implementation

Collaborative curriculum planning lies at the heart of what we do in the department. We are committed to a three-year plan of developing our schemes of work. In 2019/2020 we are working on KS4 schemes of work. These are focussed on embedding challenge, metacognition, memory techniques and literacy into our departmental curriculum

Alongside our schemes of work, we are developing knowledge organisers at KS3. This is enabling us to define the core knowledge our students need to master.

In Computing we also implement our curriculum through challenges and extension activities. In every lesson students will always have the opportunity to build on the tasks to further develop their understanding of the topic. Students that put in the extra effort to tackle extended projects and extension work will always be rewarded for their time, commitment and professionalism.

Impact

We know our curriculum is working in the Computing department through our very good A-Level results. Students that have been successful in Computing have gone on to study the subject at university and have also taken the opportunity to complete degree level apprenticeships with large organisations and businesses. Students enjoy the structured lessons and the opportunities they have to be creative when problem solving.