

## ICT & Computer Science

### Intent

#### **KS3**

- Curriculum broadly follows the NC for computing at KS3 with the inclusion of a number of ICT topics to support progression into the ICT pathway at KS4. In year 9 the subject is split into ICT and Computing pathways.
- Learners will learn core computing concepts with a particular focus on computational thinking and problem solving, a particular weakness area at KS2. ICT content reflects IT skills necessary for further study at KS4 and in a range of curriculum areas.
- ICT learning will be practical skills-based and students should be able to apply skills in a range of curriculum areas. Computing will combine skills from other curriculum areas such as English, Maths and science to aid problem solving and develop computational thinking, primarily through practical, computer-based activities.

#### **KS4**

- Curriculum follows the Cambridge Nationals Creative iMedia and OCR GCSE Computer Science specifications.
- In ICT students will learn pre and post production skills for a range of computer generated media including graphics and audio. Students will gain an understanding of the real-world considerations required to undertake an electronic media project and the planning and critical evaluation required for success. Students will primarily learn through practical project work.
- In Computer Science students will learn a range of theoretical computing topics and practical programming skills. Lessons will be a mixture of book/worksheets based theory and programming to prepare for paper 2 topics and the programming project in Year 11.

#### **KS5**

- Curriculum follows the OCR A Level Computer Science specification.
- Students will learn a range of theoretical computing topics and practical programming skills. Lessons will be a mixture of book/worksheets based theory and practical programming with

programming used to demonstrate algorithms and develop computational thinking wherever possible.

## Implementation

### **KS3**

- 2, 1 and 3 lessons per fortnight in Year 7, 8 and 9 respectively
- Teaching will, in most lessons, revolve around PG online resources comprising an introduction presentation and a series of development tasks
- Majority of assessment is formative, usually verbal. Summative assessment is conducted termly where necessary/appropriate using either Google Classroom or online testing through Impero software.
- Skills development is supported primarily by formative assessment and feedback, usually verbal and in the form of WWW and EBI. Differentiated tasks enable an understanding of progression for student and teacher and demonstrates successful skills development.
- Skills provide a core knowledge and competence in ICT and Computing for students to access the KS4 curriculum and approach problem solving with greater independence.

### **KS4**

- 5 lessons per fortnight
- Teaching will, in Computer Science lessons, revolve around PG Online resources comprising an introduction presentation and a series of development tasks
- Much of the assessment is formative, usually verbal. Summative assessment is conducted at the end of units in Computer Science and the end of projects in ICT.
- Skills development is supported primarily by formative assessment and feedback, usually verbal and in the form of WWW and EBI. Differentiated tasks enable an understanding of progression for student and teacher and demonstrates successful skills development.
- Skills development in ICT relates well to the pre and post production concepts that are considered de facto in the media

industry. These skills are readily transferable to related Level 3 media and games design courses.

- In computer science the KS4 and KS5 specification are closely linked with KS4 knowledge and skills providing an excellent foundation for level 3 study of Computer Science.

## **KS5**

- 9 lessons per fortnight in Year 12, 8 lessons per fortnight in Year 13.
- Teaching will revolve around PG Online resources comprising an introduction presentation and a series of development tasks
- Summative assessment is conducted at the end of units and during assessment periods designated in the college calendar.
- Skills development is supported by formative assessment and feedback, usually verbal and in the form of WWW and EBI.
- Differentiated tasks enable an understanding of progression for student and teacher and demonstrates successful skills development
- While Computer Science is not currently considered a facilitating subject for HE the reformed A Level specification now overlaps significantly with year 1 undergraduate Computer Science course content.

## **Impact**

### **KS3**

- Attainment will be judged against 9-1 target grades.
- Students will make the progress necessary to access the ICT and Computer Science at KS4 at least up to their target 9-1 grade. Students aiming to study Computer Science KS4 will, additionally, need to achieve WTG of 6 in Maths.
- Enables student to access ICT and Computing curriculum in latter years of KS3 and ultimately the KS4 iMedia or Computer Science GCSE
- At the end of key stage ICT students will be able to demonstrate competency in line with their target grade in designing and creating a range of electronic media. Student will be able make judgments about the legal and ethical implications of their use of ICT and be able to identify risks and threats.

- In Computer Science students will be able to explain and demonstrate a range of fundamental computing principles including the use of binary to represent a range of data, logic circuits to diagrammatically represent and solve Boolean logic problems and use basic sequence, selection and iteration constructs within programming to design, write and analyse simple procedural programs.

#### **KS4**

- Attainment will be judged against 9-1 target grades
- Progress will be judged at the end of projects in ICT and end of units in Computer Science. The faculty tracks progress using a shared spreadsheet and it is used to calculate WTG predictions.
- At the end of key stage ICT students will be able to demonstrate competency in line with their target grade in designing and creating a range of electronic media. Their work will reflect industry practise. Students will be able make judgments about the legal and ethical implications of their use of ICT and be able to develop solutions to real-world problems.
- In Computer Science students will be able to explain and demonstrate a range of computing principles including systems architecture, data representation, networks, algorithms and legal, ethical and moral implications of Computer Science.
- Achievement of grade 6 in Computer Science will enable students to enrol on the KS5 Computer Science course in 6<sup>th</sup> form, a grade lower than 6 is not considered adequate to fully access level 3 curriculum content.

#### **KS5**

- Attainment will be judged against FFT target grades
- Progress will be judged at the end of units with numerous assessment periods built into the college calendar.
- The faculty tracks progress using a shared spreadsheet and it is used to calculate WTG predictions.

- Students will be able to explain and demonstrate a range of computing principles including systems architecture, data representation, networks, algorithms and legal, ethical and moral implications of Computer Science. They will be able to independently undertake a software development projects and analyse, develop and test a GUI based application.
- Students will leave having developed their ability to perform computational thinking, a skill that is essential to the fields of science engineering and mathematics. While this is not a facilitating subject for HE there are tangible transferable skills which would be considered in applications and interviews.