ICT, Media & COMPUTING

The ability to use and understand how computers work is an essential skill for students to be able to take an active part in modern society. The school has state of the art equipment in four dedicated computer suites and offers a wide range of courses to suit the interests of all students.

Here is a curriculum overview:

In the Computing & ICT Department we are committed to give all students, regardless of ability, an understanding of the role that the Computing plays in the world in which they live alongside practical understanding of the uses of a range of computing technologies. In providing students with these computational skills, it is expected that their knowledge and understanding develops as they apply these across the curriculum.

The department has five computer suites which are available to students throughout the day on an 'open access' basis; in addition other, cross-curricular computing suites exist for use by other departments. The school operates a Local Area Network and also benefits from a wireless connection.

Aims of the Department

To help pupils to understand and apply the fundamental principles of computer science, including logic, algorithms, data representation, and communication

To equip our pupils with the skills to analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems

To help pupils evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

To teach pupils to be responsible, competent, confident and creative users of information and communication technology A Computer Club runs Tuesday, through to Thursday at lunchtimes every week, and is staffed by members of the department to promote an atmosphere of independent, cross-curricular study.

The Department offers a range of accredited courses to accommodate our students through key stages 3, 4 and 5. These include:

The schemes of work are selected to give a balanced and varied programme of study, incorporating a full range of differentiation to meet all our students' needs. Progression through the key stages leads to students being expected to apply greater understanding and develop into independent learners.

Cardinal Langley RC High school's bespoke Key Stage 3 Computing programme of study covering all aspects of the Government new Computing curriculum.

OCR GCSE Computer Science J276

OCR GCE A Level Computer Science

Cambridge Technical IT (Level 3)

Cambridge Technical Digital Media (Level 3)

KS3 ICT and Computing

During KS3, students are introduced to a range of software packages which will allow them to consolidate their existing Computer Science competencies and then start to develop more sophisticated skills such as programming, game-making and web-design.

	Year 7	Year 8
Autumn	Introduction to the network and computer systems: understanding the components of a computer, logging on, accessing personal areas, file management. Hardware & Software: developing an understanding of the components and devices that make computers work.	Enterprise: Students work together in groups to come up with an idea to raise money for a local charity. They need to plan and promote the event.
Spring	E-Safety: understanding how to use the internet and mobile phones safely Website Design and HTML: an introduction to building a basic website.	Animations: Using Adobe Flash CS5, students learn to create professional web animations.
Summer	Game project Programming: using the advanced features of Scratch such as Broadcast, Loops, If statements, Variables, operators and arrays.	Mindstorm Project Education EV3 integrates cross-curricular teaching with project-based learning, inspiring pupils at all academic levels. Bringing the world of robotics into the classroom is an exciting new way to inspire and encourage pupils, giving them a better understanding of the links between maths, science, design and technology.

KS4 ICT and Computing

From 2016 KS4 students had the option to choose either OCR GCSE Computer Science or BTEC creative media productions.

GCSE Computer Science

The course gives students a real, in-depth understanding of how computer technology works. The course will develop critical thinking, analysis and problem-solving skills through the study of computer programming, giving students a fun and interesting way to develop these skills, which can be transferred to other subjects and even applied in day-to-day life.

http://www.ocr.org.uk/qualifications/gcse-computer-science-j276-from-2016/

Year 10 and 11

This is a two year linear course with two exams and a controlled assessment. The course is covered using a blended approach to students learning with elements from the 3 strands running concurrently. The CA is attempted in Year 11 to a board set brief.

Computer systems (40%)

Systems Architecture

Memory

Storage

Wired and wireless networks

Network topologies, protocols and layers

System security

System software

Ethical, legal, cultural and environmental concerns

Computational thinking, algorithms and programming (40%)

Algorithms *

Programming techniques

Producing robust programs

Computational logic

Translators and facilities of languages

Data representation

Programming project ** (20%)

Programming techniques

Analysis

Design

Development

Testing and evaluation and conclusions

GCSE Computing (Year 11 only) Overview

This is the final year of the J275 Computing course. Students have studied some of the A451 content and completed their A452 CA. In Year 11 we tackle A453 and the remaining A451 content before preparing for the exam.

Term 1	Term 2	Term 3
Unit A452: Programming Project (30% Controlled Assessment) OCR will issue a range of assessment tasks each consisting of up to three sub tasks. The set of tasks within the controlled assessment will provide opportunities for the candidate to demonstrate practical ability to use the skills outlined in the specification for this unit.	Unit A451: Continued … This unit of work covers the body of knowledge about computer systems on which the examination will be based.	Unit A451: Final preparation for Examination This unit of work covers the body of knowledge about computer systems on which the examination will be based.

BTEC Creative Media Production

WHAT IS THIS COURSE ABOUT?

The course introduces students to many of the skills, working practices and industry theories that are key to this exciting and ever growing creative sector. During the course, students can see whether the industry is one they want to be in, where they could go, and gain the knowledge and skills they need to succeed in their next steps.

WHAT SKILLS WILL I DEVELOP?

You will learn about the meticulous planning that goes into producing the magic we see on our screens and hear through our speakers every day. You will learn about the legal and moral issues that surround the production and distribution of media products. You will learn practical skills that will enable you to produce quality media products, such as videos, websites, digital publications or podcasts. What's more, the transferable skills you master during your studies such as self-refection, communication, teamwork and problem solving will also support your progress in the present and future.

40% NON-EXAMINED ASSESSMENT

Aim: apply digital skills and techniques by responding to a digital media brief.

Assessment: externally assessed task where students respond to a brief to create a media product.

60% CONTROLLED ASSESSMENT

2 internally assessed and externally verified units:

Exploring Media Products:

- **Aim**: learn about the sector and investigate media products across the following sub-sectors:
- audio/moving image (TV programmes, films, video shorts, animations, radio broadcasts)
- publishing (newspapers, magazines, books, e-magazines, comics) interactive (websites, mobile applications, mobile games, video games, online games). Developing Digital Media Production Skills: Aim: develop technical skills and techniques in the chosen discipline(s) of audio/moving image, publishing and interactive media.

FURTHER EDUCATION

After completing the course, your students can continue on to further vocational and academic study at level 2 and level 3, as well as apprenticeships and traineeships.

CAREER OPPORTUNITIES

Any work that involves digital media such as radio, television or film production, gaming and web design or any employment that involves a need for business and customer/client awareness. If you see it online, on TV, at the cinema, on your computer tablet or phone; if it's a movie, a programme, a game or an app; if it's a website a magazine an advert or a flyer; it's been planned and produced by people working in creative media.

KS5 A Level Computer Science

This is a traditional A level qualification that includes 2 exams and a Controlled assessment.

OCR A Level Computer Science H446

Focus on programming, building on our GCSE Computing and emphasise the importance of computational thinking as a discipline.

Have an expanded maths focus, much of which will be embedded within the course.

Put computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence.

Allow student to apply the academic principles learned in the classroom to real world systems in an exciting and engaging manner.

Give students a clear progression into higher education, as the course was designed after consultation with members of BCS, CAS and top universities.

Computer systems

Computer systems (40%) Algorithms and programming (40%) and Programming

The characteristics of contemporary processors, input, output and storage devices

Software and software development

Exchanging data

Data types, data structures and algorithms

Legal, moral, cultural and ethical issues

Algorithms and programming

Elements of computational thinking

Problem solving and programming

Algorithms to solve problems and standard algorithms

The learner will choose a computing problem to work through according to the guidance in the specification.

Programming Project

Analysis of the problem

Design of the solution

Developing the solution

Evaluation

KS5 ICT

Cambridge Technical Level 3: OCR subsidiary diploma (One A level equivalent)

This level 3 qualification is intended as a basic introduction to the study of IT alongside other fields of study. Equivalent in size to one A Level students study 5 units over 2 years.

This qualification is designed for learners who are interested in an introduction to the study of creating IT systems to manage and share information, alongside other fields of study, with a view to progressing to a wide range of higher education courses, not necessarily in IT.

5 units of which 3 are mandatory and 2 are external.

External assessment (50%)

KS5 Digital Media

Cambridge Technical Level 3: OCR subsidiary diploma (One A level equivalent)

This level 3 qualification is intended as a basic introduction to the study of IT alongside other fields of study. Equivalent in size to one A Level students study 5 units over 2 years.

This qualification is designed for learners who are interested in an introduction to the study of Digital media with emphasis towards the gaming industry, alongside other fields of study, with a view to progressing to a wide range of higher education courses, not necessarily in Digital Media or Gaming.

5 units of which 3 are mandatory and 2 are external.

External assessment (50%)

Home Learning

We would encourage all students to code as much as they can. Practical home learning tasks will be set from time to time and can be completed using free online development tools.

https://www.python.org/

http://www.codecademy.com/

http://www.raspberrypi.org/

http://www.code.org

5 ways I can help my son/daughter	
1	Parent Guide: Understanding Cyber Bullying http://www.bbc.co.uk/schools/parents/cyber_bullying/
2	E-Safety for Parents http://www.kenttrustweb.org.uk/kentict/kentict_esafety_parents.cfm
3	Your child will need to work more independently at secondary school than at primary school. But your interest and input will still be important and will help your child to do well in ICT & Computing.
4	Look for opportunities to talk to your child about ICT and how it has changed our society, in so many ways. Children enjoy sharing what they are learning. Try to find topics you're both interested in so it's more of a conversation than an interrogation.
5	Ask your child if there's anything you can do to help with homework. Discuss the organisation of the work.