

WHAT CAN I STUDY?

The Computing Department offers three GCSE-level courses for you to study.

- GCSE Computer Science
- Cambridge National in Creative iMedia
- Cambridge National in Information Technology

In this presentation we'll look at each one, discussing

- What skills you will learn
- Where the qualification could take you
- What you may want to consider before you choose the option

GCSE COMPUTER SCIENCE

This course focuses heavily on how computers work and how they are put together, rather than what you can use them for.

- You will do a lot of programming in C#.NET
- You will learn how to deal with binary, decimal and hexadecimal numbers and how to convert between the three.
- You will study the different hardware of a computer in detail, understanding why computers use different hardware to each other.
- You will study ethical, legal and environmental concerns, looking at how computers can be used for the wrong purposes along with how they affect the earth's natural resources and its climate.

C# PROGRAMMING

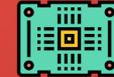
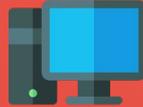


We will learn:

- How to use information with different data types
- When, how and why we should convert from one type of data to another
- How to use different kinds of loop (for loop, while loop) to repeat code that needs to repeat for a number of steps
- How to write subroutines for code that might need to run again at different times in a program
- How to load and save files from/to the computer's hard drive
- How to store information in arrays (lists), including storing more than one array in an array (two-dimensional arrays)

STUDYING COMPUTERS

- We will learn about types of computer and the differences in their hardware, from national supercomputers down to embedded systems.



- We will learn how computers convert text, images and sounds to binary numbers and how to convert between binary, decimal and hexadecimal.

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010100110101001110101110110101001001001011101100...
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- We will learn about CPUs, Memory and Storage and the differences between the different kinds of each, including the inner workings of a processor, the Fetch-Decode-Execute cycle, how a hard drive works and the differences between different kinds of storage device.



- We will also learn about networks and protocols that allow our computers to communicate with each other.



LEGAL, ETHICAL AND ENVIRONMENTAL

- As well as the technical and practical elements of Computer Science, we will learn about:
 - Social Engineering
 - Malicious software
 - Piracy and Copyright/Trademarks/Intellectual Property
 - Technology's impact on the environment



WHERE CAN COMP SCI TAKE ME?

- Not all schools study Computer Science
 - ...meaning you'd have an advantage at A-Level if you carried on studying the subject



- You may want to study Computer Science at University level
- You may want to work in the Software Development Industry, creating programs and software solutions
- Several former students work in the IT industry now as well-paid programmers/software developers and web designers.



WHAT MIGHT I NEED TO KNOW?

- In previous years, this course was only available to Express Set students and Set 1 students, due to the level of difficulty involved.
- While this is **no longer** a restriction, the course is still one of the **most difficult** GCSE qualifications you can study at Byrchall.
- You will need to be a **confident** student who does not 'give up' when something is difficult. Your code will go wrong, and you will need to be resilient enough to find your mistake and fix it.

- You should be ready for a lot of programming.



- You should be interested in how computers work, **not** just what they can do.
• Do not take this course if you just happen to like using computers.

This course is designed for anyone who loves different kinds of media created for different purposes and audiences.

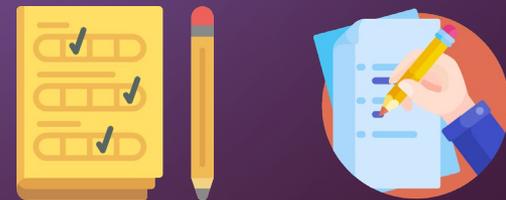
We will study three units:

- R093: Creative iMedia in the Media Industry (exam)
- R094: Visual Identity and Digital Graphics (project)
- And one optional unit, either:
 - R095: Characters and Comics
 - R097: Interactive Digital Media



Here we will learn about:

- Sectors of the media industry, media products and job roles
- Factors influencing product design
- Pre-production planning
- Legal issues
- Distribution platforms and types of physical and digital media



Some answers are short or multiple choice, others need an 'extended response' (essay questions or drawing things).

- Visual Identity is about what we think when we see a certain company's logo, font choices, colour schemes etc.

- Here we will learn about

- Researching and developing visual identity
- Planning digital graphics for products
- Creating visual identity and digital graphics



- As you can see, this is not just about using Photoshop – there will be a lot of research, planning and written work involved to show our understanding.

R095 CHARACTERS AND COMICS

- One thing multimedia is used for is storytelling. In this unit we can study characters and the comics they appear in.

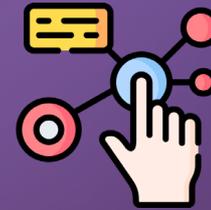
- In this unit we will learn about:

- Researching and planning characters and comics
 - Designing a character
 - Thinking of and planning a story
- Creating characters and comics
 - Making an attractive, professional comic character and telling a story in a multi-scene comic strip
- Reviewing our created characters and comics
 - Being able to evaluate how well you did and identify improvements



R097 INTERACTIVE DIGITAL MEDIA

- 'Interactive' means products 'react' when we do things with them, such as clicking on buttons etc. They may feature text, images, videos and sounds. In this unit we will learn about designing a user interface and combining different types of media.



- In this unit we will learn about:
 - Researching and planning interactive digital media, content and hardware
 - Creating interactive digital media that works and looks attractive and professional
 - Reviewing our finished interactive digital media product
 - Being able to evaluate how well you did and identify improvements

WHERE CAN IMEDIA TAKE ME?

- You may want to work in the entertainment industry

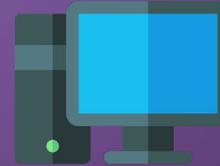
- TV, Film and Video
- Radio and Podcasting
- Video Games
- Graphic Design
- Advertising
- Magazines and books
- Photography
- Journalism and writing



- We have former students who work at Channel 4, write reviews and features for gaming websites and/or have their own graphic design businesses.

WHAT MIGHT I NEED TO KNOW?

- It's **not** just “Editing” or “Making things” - there's a lot of research and report writing as well.
 - This course is great if you're into digital graphics, character design etc but most of the marks are available for **showing your understanding** in writing.



- Must be comfortable with exams **and** in-class coursework tasks.
- You **don't** need to be an **artist** but you will need to be able to **sketch a design** and **annotate** (label) it to show your plans for how a finished product should look.

WHAT MIGHT I NEED TO KNOW?

- You will need a **creative imagination** (within the theme)
 - Must be able to think of more than one idea then pick one, and explain why you picked it over the others, while sticking to the theme given to you by the client brief.
- You need to be **confident**
 - Be the sort of person who'll try anything, no 'giving up'. You will receive feedback on your work and time to improve it.
- **Software skills and explanations**
 - Must be able to explain what skills you are using to create and edit your creations

INFORMATION TECHNOLOGIES

- This course investigates how computers can be used in a work environment, including the use of emerging technologies to support and enhance people's jobs and daily lives.

- We study such topics as:

- IT in the Digital World
- Internet of Things
- Data Manipulation
- Human-Computer Interface
- Augmented Reality



UNIT R050: IT IN THE DIGITAL WORLD

- This is assessed by taking an exam.
- In this unit you will learn about design and testing concepts for creating an IT solution or product, and the uses of IT in the digital world. Topics include:
 - Design Tools
 - Human Computer Interface (HCI) in everyday life
 - Data and testing
 - Cyber-security and legislation
 - Digital Communications
 - Internet of Everything (IoE).



R060: DATA MANIPULATION USING SPREADSHEETS

- This is assessed by completing a set assignment.
- In this unit you will learn how to plan, design, create, test and evaluate a data manipulation spreadsheet solution to meet client's requirements. You will be able to evaluate your solution based on the user requirements.
- Topics include:
 - Planning and designing the spreadsheet solution
 - Creating the spreadsheet solution
 - Testing the spreadsheet solution
 - Evaluating the spreadsheet solution.



R070: USING AUGMENTED REALITY TO PRESENT INFORMATION

- This is assessed by completing a set assignment. In this unit you will learn how to design, create, test and review an Augmented Reality model prototype to meet a client's requirements.

- Topics include:

- Augmented Reality (AR)
- Designing an Augmented Reality (AR) model prototype
- Creating an Augmented Reality (AR) model prototype
- Testing and reviewing.

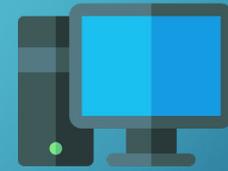


WHERE CAN INFO TECH TAKE ME?

- This course is ideal for students who enjoyed working with Spreadsheets and Databases in Years 7-9 but who also find the future possibilities of new technology (such as Augmented Reality) interesting in the sense of how they can help the world of work and business.
- The course will teach you how to handle data, how to plan, execute and manage a project, and how to think about what a user expects to see when using a system so that you can make them easy to use and accessible for everyone.

WHAT DO I NEED TO KNOW?

- This course will suit students with an analytical mind who are comfortable doing exams **and** in-class coursework tasks.



- You will need to be resilient and understand that you will sometimes receive feedback and extra work
 - You may think you have finished something, but your teacher will be able to tell you (within guidelines) what to do to improve it and get higher grades.

