



COMPUTING AND ICT

It is the aim of the Computing Department at Newent Community School and Sixth Form Centre to ensure that all students leave our school equipped with the life-long learning skills and qualifications necessary to live, thrive and compete in this technological age. Computational thinking and programming skills lie at the heart of our approach at all key stages.

Computing concepts are first introduced at Key Stage 3. At Key Stage 4, students can opt for either an ICT related qualification, or Computer Science GCSE. At Key Stage 5, students can complete an A-Level in Computer Science, or apply and develop their ICT skills through a technical qualification at Level 3. Throughout their time at Newent Community School, your child can also participate in extra-curricular clubs that are run by the Computing Department. These include the Cyber club and Code Club.

As a CyberFirst Gold award school, we offer a wide range of activities through our links with the National Cyber Security Centre and GCHQ. There are three full-time members of staff in the Department, with vast experience and knowledge in ICT and Computer Science.

Key Stage 3:

- Computing is a core subject at Key Stage 3, and students follow different topics based on fun, real-life scenarios that develop a wide range of Computing and ICT skills and capability, and which encourage students to become enthused and excited with the subject. These include programming, networks, fashion technology, web design and core ICT skills.
- Students also learn about staying safe online, plus responsible technology use and practice.
- Our KS3 pupils have three discrete Computing lessons over two weeks, with schemes of learning following the National Curriculum Computing objectives.
- Student work is evidenced using Teams, with students submitting their class work electronically and homework is set via Satchel One.
- Detailed teacher feedback is given each term, highlighting a student's current skills and capabilities and clearly showing the next steps needed to improve and develop.
- We challenge our students so that they achieve to the very best of their ability – giving both short and long term highly aspirational targets.

Key Stage 4:

At Key Stage 4 we offer two rigorous and relevant options – Edexcel GCSE (9-1) Computer Science, and WJEC Level 1/2 award in ICT (An ICT vocational qualification).

GCSE Computer Science will appeal to those students who are interested in the more 'technical' side of computers and ICT. So, if your child enjoys any of the following, then GCSE Computer Science would be the ideal subject for them:

- Learning about all types of electronic equipment and control programs (including smart phones, laptops, home automation and industrial systems, etc.)



-
- Problem solving, analysis and critical thinking
 - Investigating current trends in Computing
 - Mathematics or Science
 - Coding solutions

This is a very exciting course suitable for those students who want to learn more about what goes on inside a computer, how the Internet works, Artificial Intelligence, and how computers are used to solve some of mankind's biggest problems. There are 2 units to cover over the two-year course:

Component 1: Principals of Computer systems

- Topic 1: Computational thinking – understanding of what algorithms are, what they are used for and how they work; ability to follow, amend and write algorithms; ability to construct truth tables.
- Topic 2: Data – understanding of binary, data representation, data storage and compression.
- Topic 3: Computers – understanding of hardware and software components of computer systems and characteristics of programming languages.
- Topic 4: Networks – understanding of computer networks and network security.
- Topic 5: Issues and impact – awareness of emerging trends in computing technologies, and the impact of computing on individuals, society and the environment, including ethical, legal and ownership issues.

Component 2: Application of Computational Thinking

Problem solving with programming.

The main focus of this unit is to:

- Understanding what algorithms are, what they are used for and how they work in relation to creating programs.
- Understanding how to decompose and analyse problems.
- Ability to read, write, refine and evaluate programs.

So, if your child is considering a future career in Computing or Engineering fields, including Games Programmers, Hardware Engineers, Aerospace Engineers or Cyber Security, then this course for them.

Level 1/2 Vocational award in ICT (WJEC) This Vocational Award in ICT will develop students' knowledge and understanding of the ICT sector and provide them with opportunities to develop associated practical skills. It covers ICT in Society; allowing learners to explore the wide range of uses of hardware, application and specialist software, and ICT in context; introducing learners to a broad working knowledge of databases, spreadsheets, automated documents and images to acquire and apply high level creative and technical skills, knowledge and understanding of ICT.

It allows students to:

- Develop visual identities for clients
- Plan and design databases and interfaces



-
- Plan design and modify spreadsheets using formulae
 - Understand the impacts of technology including legal issues, risks and cybersecurity
 - The functions provided by IT and the functionality of hardware devices

This will help them to develop independence and confidence in using skills that would be relevant to the computing industry. The qualification will also help them to develop learning and skills that can be used in other life and work situations, such as:

- Thinking about situations and deciding what is required to be successful
- Exploring different options and choosing the best way forward to solve a problem
- Exploring and generating original ideas to find imaginative solutions to problems
- Selecting the best tools and techniques to use to solve a problem
- Appropriate use of media to convey meaning
- Use of planning techniques to complete tasks in an organised and timely way

Key Stage 5:

At Key Stage 5 we offer an A Level course in Computer Science and the Level 3 Cambridge Technicals in IT.

Our Computer Science qualification will above all else be relevant to the modern and changing world of computing. The course focuses on programming with the emphasis on the importance of computational thinking as a discipline.

- It puts computational thinking at its core, helping students to develop the skills to solve problems, design systems, and understand human and machine intelligence.
- It applies all the academic principles learned in the classroom to real world systems in an exciting and engaging manner.

The Cambridge Technicals in IT provides students with essential knowledge and skills in IT and cybersecurity. A wide range of units and opportunities for practical and project-based work helps students gain an insight into technological change, global IT infrastructure and legal and security considerations.

If you would like additional information on this subject, please contact Mr T Worgan, Head of Department, via email admin@newent.gloucs.sch.uk