HUTTON GRAMMAR CHURCH OF ENGLAND SCHOOL
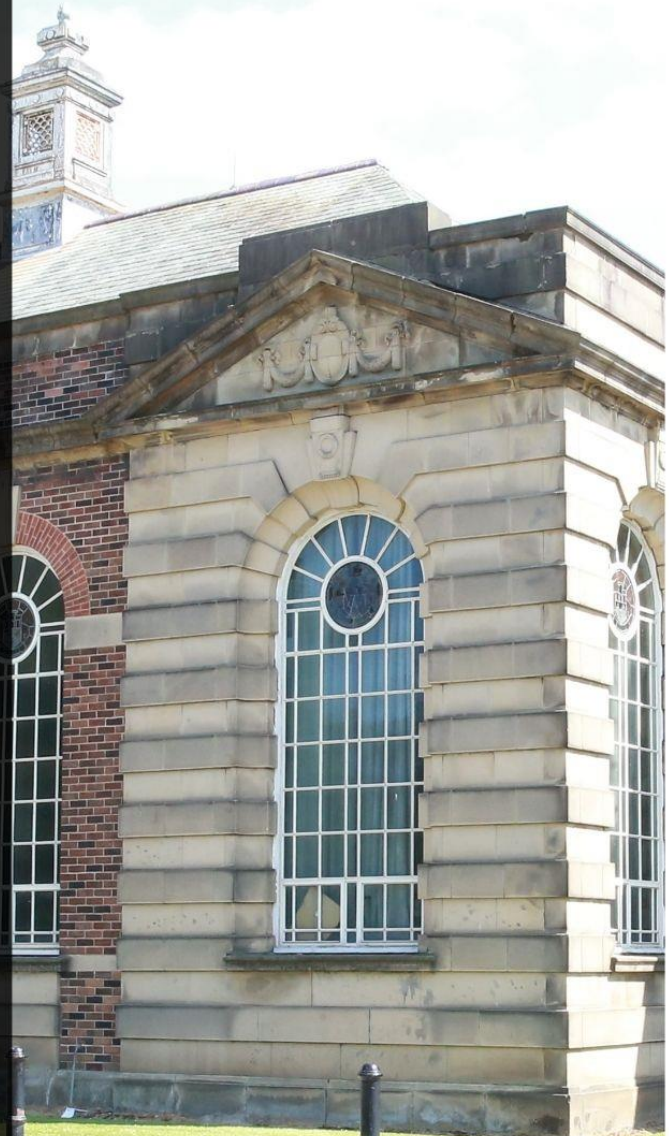
Computer Science, Business and Economics Curriculum Information, Intent and Map

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"In your relationship with one
another have the same mindset as
Christ Jesus "
Philippians 2

Staff

Mr L Howard – Subject Leader

Mrs H Allan

Mr D Dwyer

Intent:

The curriculum we offer is designed to prepare our students for life outside of the classroom or for further study in our subject, by exposing them to real life or workplace problems. This is embodied in Timothy 3:17:

"That the man of God may be competent, equipped for every good work"

The Department's Computing & ICT curriculum enable them to become decent, honest young adults who are able to make a positive contribution to their community, whether that be friends, family or the wider world. Through the development of a student's technical knowledge they are able to pass on their understanding to those who need it and use it to help those who may be struggling in a fast developing technological world. It also ensures that each student who passes through the department has the necessary technical skills to enter into the world of employment or further study.

The Computing & ICT Department curriculum therefore covers three broad areas:

Digital literacy
Appropriate and responsible use of technology which includes online safety. The use of the Microsoft Office Suite of programs is taught discretely throughout the curriculum.

Principles of computing
Computational thinking, programming skills in different programming languages, understanding how computers work. Learning how to use computers to solve problems

Information technology
Using ICT to analyse and solve problems and communicate and share ideas with others

All aspects of the curriculum are delivered in a way that relates to real life situations and problems to deepen the understanding of the student as a whole.

Resilience, determination and problem solving skills should be evident in the students that experience and are engaged in our curriculum, skills which are reinforced in all aspects of school life and embodied in Colossians 3:23:

"Whatever you do work at it with all your heart"

Computing Programmes of Study: Key Stages 3 & 4 National Curriculum in England

Purpose of Study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

The national curriculum for computing aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation

- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems

- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems

- Are responsible, competent, confident and creative users of information and communication technology.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study

Subject Content, Key Stage 3

Pupils should be taught to:

- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems.

- Understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms for the same problem.

- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures or functions.

- Understand simple Boolean logic and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers.

- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems.

- Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.

- Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users.

- Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability.

- Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.

Subject Content, Key Stage 4

All pupils must have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career.

All pupils should be taught to:

- Develop their capability, creativity and knowledge in computer science, digital media and information technology.

- Develop and apply their analytic, problem-solving, design, and computational thinking skills.

- Understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.

Computer Science- Curriculum at a Glance

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
7	Collaborating online respectfully	Using Media - gaining support for a cause	Computational thinking	Programming in Scratch	Spreadsheets	Create an adventure story - PowerPoint Baseline testing
8	Computing systems	Media - Vector graphics	Mobile App development	Python programming	Databases	MicroBiT programming - Sensing Baseline testing
9	Multimedia project - iMedia taster	Multimedia project - iMedia taster	Python Programming - GCSE Computer Science taster	Computers and Networks - GCSE Computer Science	Cybersecurity Data Science	Data Science Media - Animations Baseline testing

GCSE Computer Science

We follow the OCR J277 GCSE specification for Computer Science

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
10	Systems Architecture Memory and Storage (part 1)	Systems Software Programming Fundamentals	Algorithms (part 1) Practical Programming	Algorithms Producing robust Programs Practical Programming	Producing robust programs Practical Programming	Programming languages and IDEs Practical Programming
11	Memory and Storage (part 2) Boolean Logic	Computer Networks	Network security	Ethical, legal and cultural factors of computing	Algorithms (part 2) Revision	GCSE Examinations

GCSE Creative iMedia

We follow the OCR Cambridge Nationals specification for Creative iMedia

Year	Half Term 1	Half Term 2		Half Term 3	Half Term 4		Half Term 5	Half Term 6
10	R094 - Visual identity and digital graphics Components of visual identity Elements of visual identity Brand identity Layout conventions	R094 - Visual identity and digital graphics Properties of digital graphics Pre-production planning Sourcing assets Creating a digital graphic (Part 1)		R094 - Visual identity and digital graphics Repurposing assets Creating a digital graphic (Part 2) NEA R094	NEA R094		NEA R094 R097 - Interactive Digital Media Types of interactive digital media Features of interactive digital media	R097 - Interactive Digital Media Conventions of interactive digital media Resources required to create interactive digital media Idea generation
11	R097 Interactive Digital Media Pre-production planning Identifying assets Sourcing assets Static image assets Animated assets	**Audio assets** **Video assets** **Interactive assets** R097 NEA R093 - Exam Theory		R093 - Exam Theory	R093 - Exam Theory		R093 - Exam Theory/Revision	

Business and Economics Curriculum Information

Staff

Mr L Howard (Subject Lead)

Mrs H Allan

Mr J Hill

Mr D Morgan

Intent:

The Business and Economics curricula at Hutton Grammar School allows students to understand how the wider world works. In a climate where studying of these subjects is becoming an increasing rarity, it is imperative that students have access to this subject as it allows them to develop their preparation for work and their cultural capital. For example, through looking at taxes and payslips students gain an understanding of deductions and where this money goes, allowing them to gain an insight into how society works whilst understanding something that most people only realise when they receive their first payslip. All of which ensures that students leave us as responsible members of society. The subjects is naturally applicable to real life and current affairs, with this student's knowledge of Business is up to date and allows them to learn the best that has been thought and said. Both curricula promote intellectual curiosity with students being encouraged to critique ideas and theories, developing their ability to think for themselves. Our knowledge rich curricula provides consideration of the role of the law and the government in making judgements about what is just. This is embedded in Mark 8:36:

'For what does it profit a man to gain the whole world and forfeit his soul?'

Curriculum Map Business

We follow the Edexcel GCSE specification

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
10	1.1 Enterprise and Entrepreneurship 1.2 Spotting a Business Opportunity	1.3 Putting a Business Idea into Practice	1.4 Making the Business Effective	1.4 Making the Business Effective 1.5 Understanding External Influences	1.5 Understanding External Influences	2.1 Growing the Business
11	2.1 Growing the Business 2.2 Making Marketing Decisions	2.2 Making Marketing Decisions 2.3 Making Operational Decisions	2.3 Making Operational Decisions 2.4 Making Financial Decisions	2.4 Making Financial Decisions 2.5 Making Human Resource Decisions	2.5 Making Human Resource Decisions	GCSE Examinations

Curriculum Map Economics

We follow the Edexcel GCSE specification

Year	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
10 Micro	Factors of Production The Basic Economic Problem Role of Markets	Demand Supply Price	Price Elasticity of Demand Price Elasticity of Supply	Competition Production	The Labour Market Role of Money	The Role of Money Economic Growth
11 Macro	Distribution of Income and Wealth Low Unemployment Price Stability	Fiscal Policy Monetary Policy	Supply-Side Policies Limitations of Markets	International Trade Balance of Payments Exchange Rates Globalisaiton	Year 10 Micro Revision and Exam Technique Year 11 Macro Revision and Exam Technique GCSE Examinations	GCSE Examinations