

Curriculum Information for the School Website

Subject: Computer Science, ICT and Business

List of TLR Holders and their responsibilities:

Mr Ian Michael Head of Department
Mr Tom Rhys Teacher in charge of GCSE Business

Department aims:

Students will...

- understand and apply the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms, and data representation;
- analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs;
- think creatively, innovatively, analytically, logically and critically;
- understand the components that make up digital systems, and how they communicate with one another and with other systems;
- understand the impact of digital technology to the individual and to wider society;
- apply mathematical skills relevant to computer science;
- apply information technology, including new or unfamiliar technologies for new and future challenges.
- be passionate about their exam-based subject choices and achieve external results to their potential

Approaches to teaching and learning:

Students will...

- engage in their learning helped by knowledgeable, confident and reflective teaching;
- take responsibility for their learning and respect others;
- complete activities that appeal to all learning styles including kinaesthetic, visual and aural.

Why the department has adopted this curriculum plan: (Curriculum Intent):

Our curriculum follows National Curriculum Computing education [guidance](#)...

- to equip students to use computational thinking and creativity to understand and change the world;
- to explore the links with mathematics, science, and design and technology, and provide insights into both natural and artificial systems;
- to teach the core principles of Computer Science; information and computation, how digital systems work, and how to put this knowledge to use through programming;
- to build on knowledge and understanding, to equip students to use information technology to create programs, systems and a range of content;
- to ensure students 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.

To provide an engaging curriculum that will prove popular and engage the students in the world of Business.

Principles of sequencing learning in this subject:

Computer Science and ICT

Students develop and transition their programming skills in the lower school using a range of tools by...

- building on KS2 Scratch block-based and Kodu menu-based game programming in Year 7
- using a simple friendly environment for SmallBASIC text-based programming to consolidate skills and confidence in Year 8
- tackling more complex programming in Python in Year 9 in preparation for GCSE.

Concepts and software tools are initially introduced and reinforced and extended later in the curriculum.

Simplified GCSE content is taught in the lower years, informing and enabling students to study more successfully at GCSE level.

Aspects of A Level content are taught at GCSE level enabling stretch and challenge and smoother progression to post-16 study.

Business

The topics are taught so that the concept of Business is introduced before specific influences and departments are investigated in more depth. Finance is covered in Year 11 to give students sufficient time to gain knowledge of relevant mathematics topics.

Curriculum Outline (Years 7 - 9):

Year 7	Autumn Term	Spring Term	Summer Term
Knowledge taught	The RMS Computer Systems Google Applications On-line safety Microsoft Word/Word-processing Computational thinking	Spreadsheets - Microsoft Excel/Spreadsheets Introduction to Number Systems Binary	Block Programming using Scratch Programming using Kodu
Skills taught	Using the RMS Computer Systems Email Google Docs, Slides, Forms, Sites, etc. Touch typing and	Using spreadsheets - conditional formatting, formulae, charts Converting between denary and binary Representing images	Implementing sequences, selections and iterations using Scratch Developing simple computer game by

	word processing Problem solving using computational thinking techniques	using binary	creating landscapes, cloning sprites, navigation, etc
Assessments	Computational thinking presentation	Spreadsheet assignment	End of year examination

Year 8	Autumn Term	Spring Term	Summer Term
Knowledge taught	Text-based Programming using SmallBASIC	Introduction to financial modelling using Microsoft Excel Flowcharting	Computer Systems - hardware and software Revision of Binary Binary addition ASCII
Skills taught	Implementing variables, sequences, selections, nested loops, subroutines and Turtle graphics	Real-world modelling Creating a financial model Exploring what...if scenarios Spreadsheet validation, macros and charts Using flowcharting to design the solution to simple logic problems	Ability to identify the components of a computer system and to explain common computer terminology Understand the Fetch- Decode-Execute cycle Carry out binary addition Understand how characters are represented in a computer system
Assessments	SmallBASIC programming test	Spreadsheet test	End of year examination

Year 9 (Option)	Autumn Term	Spring Term	Summer Term
Knowledge taught	Text-based Programming using Python Program Design Testing Documentation	Database Systems Microsoft Access	Internet Bias and Reliability Computer Crimes Laws relating to Computing Health & Safety Representing Sound
Skills taught	Python coding - sequences, selections and iterations	Understanding the structure of paper- based and	Awareness of and ability to identify fake news

	Using flowcharting to design programming solutions Constructing test plans, identifying suitable test data, calculating expected results and collating test evidence	computerised databases, and associated terminology Create database tables, queries, forms, reports, menus	Evaluating the reliability of information Identifying types of computer crimes Know the main principles of the Data Protection Act & GDPR, Computer Misuse Act, and the Copyright and Patents Act How to minimise health and safety risks when using a workstation Understand how sound is represented in a computer system
Assessments	Python programming test	Database test	End of year examination

Useful weblinks:

ICT Workout <https://www.ictworkout.co.uk> (ask for login details)

BBC Bitesize <https://www.bbc.com/bitesize/subjects/zvc9q6f>

Year 9 Programming - Python <https://www.python.org/>

Year 8 Programming - SmallBASIC <https://smallbasic-publicwebsite.azurewebsites.net/>

Year 7 Programming - Scratch <https://scratch.mit.edu/> & **Kodu** <https://www.kodugamelab.com/>

GCSE Computer Science [Syllabus](#) Information:

Year 10	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge taught	Systems architecture Memory Computational thinking Program design Programming techniques (Python)	Systems software Wired and wireless networks Programming techniques (Python)	Network topologies, protocols and layers Programming techniques (Python) Errors and Testing
Skills taught	Programming, sequences Problem solving Apply mathematical	Programming, lists and subprograms Apply mathematical skills to programming	Programming, consolidation Apply mathematical skills to programming

	skills to programming Apply programming concepts to problems Resilience, to fail before you succeed	Apply programming concepts to problems	Apply programming concepts to problems Test planning
Assessments	Progress test	Progress test	Practice exams 1&2
Year 10	Autumn Term 2	Spring Term 2	Summer Term 2
Knowledge taught	Storage Computational logic Searching and sorting algorithms Programming techniques (Python)	Data representation Programming techniques (Python)	Translators and facilities Programming techniques (Python)
Skills taught	Programming, selections and iterations Apply mathematical skills to programming Apply programming concepts to problems Resilience, to fail before you succeed	Programming, file handling Apply mathematical skills to number bases Apply programming concepts to problems	Programming, consolidation Apply mathematical skills to programming Apply programming concepts to problems
Assessments	End of term progress test	End of term progress test	Practice programming project

Year 11	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge taught	Social, legal and environmental issues Programming project documentation	NEA Programming Project	Revision
Skills taught	Programming, consolidation Apply mathematical skills to programming Apply programming concepts to problems	Apply analytical and creativity skills Apply mathematical skills to programming Apply programming concepts to problems Research and referencing Communication and writing skills for report	Study skills, exam technique

Assessments	Progress test	Project is an exam board requirement	Past exam paper questions
Year 11	Autumn Term 2	Spring Term 2	Summer Term 2
Knowledge taught	NEA Programming Project	System security Database and SQL	Revision
Skills taught	Apply analytical and creativity skills Apply mathematical skills to programming Apply programming concepts to problems Research and referencing Communication and writing skills for report	Understanding and writing algorithms Apply mathematical skills to programming Apply programming concepts to problems	Study skills, exam technique
Assessments	Project is an exam board requirement Practice exams 3&4	Practice exams 5&6	Past exam paper questions External exams x 2

How students will receive feedback to enhance their knowledge and skills:

- Whole class, small group and one to one support when developing programming skills through a series of graded and challenging tasks
- Progress tests and practice exam papers with their mark schemes

Reading List:

[CGP GCSE OCR Computer Science](#) Revision Guide and Exam Practice Workbook will be provided for each student for home use

[OCR endorsed textbooks](#)

Useful weblinks:

Programming - Python <https://www.python.org/>

Teach-ICT <https://www.teach-ict.com/> (ask for login details)

- Choose GCSE OCR 9-1 J276 for course content, learning and revision resources, past paper questions/answers

Seneca <https://www.senecalearning.com/> accessible through free registration

- Choose OCR Computer Science for course content, learning and revision resources

BBC Bitesize GCSE OCR Computer Science<https://www.bbc.com/bitesize/examspecs/zmtchbk>**Craig 'n' Dave YouTube channel**<https://www.youtube.com/channel/UC0HzEBLlJxlrwBAHJ5S9JQg>

GCSE Pod - via the School's VLE

101 Computing website <https://www.101computing.net/>GCSE Business [Syllabus](#) Information:

Year 10	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge taught	Business in the Real World - Business sectors; types of business; business aims.	Business Influences - Technology; Ethics and Environmental Considerations; Interest rates; Exchange Rates.	Business Operations - Customer Service. Human Resources - Organisational Structure.
Skills taught	Demonstrate knowledge and understanding of business concepts and issues.	Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts.	Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.
Assessments	Ongoing through class and homework	Influences on Business Unit Test	Business Operations Unit Test Practice exams 1&2
Year 10	Autumn Term 2	Spring Term 2	Summer Term 2
Knowledge taught	Business in the Real World - Choice of location; Costs, Revenue and Profit; Economies of Scale.	Business Influences - Employment Law; Consumer Law; Competitive Environment. Business Operations - Methods of Production; Efficiency; Supply Chain Management; Quality.	Human Resources - Centralisation and Decentralisation; Recruitment and Selection.
Skills taught	Demonstrate knowledge and understanding of	Apply knowledge and understanding of business concepts and	Apply knowledge and understanding of business concepts and issues to a

	business concepts and issues.	issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.	variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.
Assessments	Business in the Real World Unit Test	Ongoing through class and homework	Human Resources Unit Test

Year 11	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge taught	Marketing - Identifying and Understanding Customers; Market Segmentation; Market Research; The Marketing Mix - Product, Price, Place, Promotion.	Revision of all units. Exam skills.	Revision of all units. Exam skills.
Skills taught	Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.	Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.	Financial Calculations. Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.
Assessments	Marketing Unit Test	Past exam paper questions	Past exam paper questions
Year 11	Autumn Term 2	Spring Term 2	Summer Term 2

Knowledge taught	Finance - Sources of Finance; Cash Flow; Break Even; Income Statements; Statements of Financial Position.	Revision of all units. Exam skills.	Revision of all units.
Skills taught	Financial Calculations. Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.	Financial Calculations. Demonstrate knowledge and understanding of business concepts and issues. Apply knowledge and understanding of business concepts and issues to a variety of contexts. Analyse and evaluate business information and issues to demonstrate an understanding of business activity, make judgements and draw conclusions.	Exam skills including correct response to key examination 'command' words.
Assessments	Finance Unit Test Practice exams 3&4 Past exam paper questions	Past exam paper questions Practice exams 5&6	Past exam paper questions External exam

Reading List:

- AQA GCSE (9-1) Business (Second Edition). Hodder Education.
- My Revision Notes: AQA GCSE (9-1) Business

Useful weblinks:

- [AQA Website](#) - Specification, Past papers and other useful documents
- [Hodder Education](#) - Course Textbook and Revision Notes Book
- [BBC Bitesize GCSE Business](#)
- [Tutor2U](#) - Business Resources, activities and blog
- [Revision World Business Studies](#)

Cambridge National in Information Technologies [Syllabus](#) Information:

Year 10	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge	Phases of a project	Planning forms:	Target audience and

taught	life-cycle Project planning tools and software Planning a project Creating planning documentation	flowchart and GANTT chart Initiation phase inputs Initiation phase outputs Phase review and next steps	presentation Spreadsheets and Databases How information is shared Software techniques to improve presentation
Skills taught	Word - word processing	Excel spreadsheet	Access database
Assessments	Progress test	Progress test	Practice exam 1
Year 10	Autumn Term 2	Spring Term 2	Summer Term 2
Knowledge taught	Threats and vulnerabilities Cyber-security attacks Relevant IT legislation Planning documents	Data and Information Data collection using IT and storage methods Using databases to input and manipulate data	Planning phase review Iterative reviews and testing Practical testing Evaluation
Skills taught	PowerPoint - presentation	Excel spreadsheet	Access database
Assessments	End of term progress test	End of term progress test	End of term progress test

Year 11	Autumn Term 1	Spring Term 1	Summer Term 1
Knowledge taught	Online questionnaires Creating a database Queries and Reports Create a dynamic presentation	The importance of data reliability Data stores Aspects of legal protection Storing data/information	Revision
Skills taught	Consolidation of software skills	Developing technological solutions	Study skills and exam technique
Assessments	Progress test	External exam (January Series)	Past papers
Year 11	Autumn Term 2	Spring Term 2	Summer Term 2
Knowledge taught	Data security and cyber security Collecting data Data collection and	-	Revision

	processing Security measures in spreadsheets and databases		
Skills taught	Consolidation of software skills	Developing technological solutions	Study skills and exam technique
Assessments	Practice exam 2	Practice exam 3 for resit students	Past papers External exam resit (June Series) Submission of coursework (June Series)

How students will receive feedback to enhance their knowledge and skills:

- Whole class, small group and 1-2-1 support when developing software skills through a series of graded and challenging tasks
- Progress tests and practice exam papers with their mark schemes

Reading List

- [OCR endorsed textbook](#) - will be used in the classroom
- [My Revision Notes: Cambridge National Level 1/2 Certificate in Information Technologies](#) will be provided for each student for home use

Useful weblinks:

- **GCSE Pod** - via the School's VLE
- **BBC Bitesize GCSE ICT** <https://www.bbc.com/bitesize/subjects/zqmtsbk>
- **ICT Workout** <https://www.ictworkout.co.uk> (ask for login details)

Extracurricular and enrichment:

- after-school programming workshop for years 7-10 to practise and develop their programming skills
- after-school programming consolidation sessions for students in years 10 & 11
- after-school revision programme leading up to the practice and external examinations for students in year 11

Spiritual, Moral, Social and Cultural opportunities:

- students' e-safety online is explained and addressed
- students consider the consequences, advantages and disadvantages of things such as hacking, cyber bullying, privacy, ethical decisions relating to how ICT is used and abused as well as computer science related crime and the legislation related to computer science: data protection act; computer misuse act; copyright and patents act

- students are aware that bias and reliability of information online can be a problem
- students investigate business ethics and multinational businesses

Character development and British Values opportunities:

- students will have opportunities to work independently and as a team to build resilience and self-esteem through a range of activities
- students share ideas and resources and encourage and support each other
- students are encouraged to discuss viewpoints whilst ensuring students they are respectful to others
- students are recognised and rewarded for their achievements and positive behaviour through the School's systems
- Students study democracy within a business; consumer and employment legislation