2023-
2024

Computer Science curriculum map

Brownhills Ormiston Academy- Computer Science Curriculum Map

Year 7 Computer Science:

Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6
E-Safety and Microsoft Skills: An introduction to Brownhill's ICT network, staying safe online, sharing work, communicating electronically, the various Microsoft skills needed to complete everyday computing tasks.	**Binary Representation:** An introduction to binary and the way in which computers work. Conversion of binary and decimal numbers. Binary addition and hexadecimal calculations.	**History of Computers:** A unit to allow pupils to explore how technology and computers have evolved over time. There is an investigation into the space war as well as the codebreaking era.	**Python Turtle:** Pupils will create a series of programs such as creating different shapes, objects utilising Python Turtle to build their application of knowledge and programming skills.	**Python/Scratch Programming:** This unit builds upon Python Turtle further with more programming opportunities to embed programming usage as a fundamental skill in Computer Science through the	**Computational Thinking:** A unit to allow pupils to further embed deeper thinking, they will be provided with several real-life problems in society; using computational thinking methods they will then apply these to solve the problem just as a computer would.

Brownhills Ormiston Academy- Computer Science Curriculum Map

Year 8 Computer Science:

Theme 1	Theme 2	Theme 3	Theme 4	Theme 5
Systems Architecture: An introduction to how a computer is made, the production of it and the environmental impact of it. Pupils will also explore the main components of a computer and look at the FDE (Fetch decode execute) cycle in detail.	**Python Programming:** This unit builds upon the foundations of Python programming and focuses on programming efficiently. Programs created will vary in size and technique and will give pupils an opportunity to program in different ways.	**History of Computers:** A unit to allow pupils to explore how technology and computers have evolved over time. There is an investigation into the space war as well as the codebreaking era.	**Databases:** Pupils will design and build their own database using Microsoft Access. The various databases they will build include a school, hospital, police station and supermarket database, linking real world applications in the subject.	**Computational Thinking:** A unit to allow pupils to further embed deeper thinking, they will be provided with several real-life problems in society; using computational thinking methods they will then apply these to solve the problem just as a computer would.

Brownhills Ormiston Academy- Computer Science Curriculum Map

Year 9 Computer Science:

Theme 1	Theme 2	Theme 3	Theme 4	Theme 5
Binary Representation: An introduction to binary and the way in which computers work. Conversion of binary and decimal numbers. Binary addition and hexadecimal calculations.	**Python Programming:** This unit builds upon the foundations of Python programming and focuses on programming efficiently. Programs created will vary in size and technique and will give pupils an opportunity to program in different ways.	**Security and Attack:** Hacking, the laws and the dangers of cyber-attacks are all explored in this unit. Pupils will discover the reasons why cybercriminals commit crimes and the implications of breaching the Computer Misuse Act. They will explore malware and how it is often spread.	**Advanced Python:** Pupils will be given a series of Python based programs to improve and make efficiency. Using several programming methods and techniques efficiency and clean coding practices are explored in great depth.	**Advanced Spreadsheets:** This unit focuses on the creation of spreadsheets using Microsoft Excel. Several real-world examples are used to demonstrate the importance of spreadsheets, data handling and management. Pupils will also embed macros and formulas within these spreadsheets to aid automation.

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Year 10 WJEC Level 1/2 Tech Award ICT:

Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
• Skills Audit and Recall • Introduction to qualification • Functionality of different hardware devices	• Functionality of different software • Databases skills and application in contexts	• Use of ICT services • Images skills and applications in contexts	• Images skills and applications in contexts • Spreadsheets skills and applications in contexts	• Spreadsheet skills and application in contexts • How data and information is used and transferred for cyber security	• How data and information is used and transferred for cyber security. • Development of ICT coursework skills

Year 11 WJEC Level 1/2 Tech Award ICT:

Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Coursework completion	Coursework completion	Unit 1- ICT In Society	Unit 1- ICT In Society	Revision	Public examinations

Brownhills Ormiston Academy- Computer Science Curriculum Map

Year 10 OCR Computer Science J277:

Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
J277/01: Computer systems • Systems architecture	J277/01: Computer systems • Memory and storage	J277/01: Computer systems • Computer networks	J277/01: Computer systems • Networks security	J277/01: Computer systems • Systems software	J277/01: Computer systems • Ethical, legal, cultural and environmental impacts of digital technology

Year 11 OCR Computer Science J277:

Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
J277/02: Computational thinking, algorithms and Programming • Algorithms	J277/02: Computational thinking, algorithms and Programming • Programming fundamentals	J277/02: Computational thinking, algorithms and Programming • Producing robust programs	J277/02: Computational thinking, algorithms and programming • Boolean logic	J277/02: Computational thinking, algorithms and Programming • Programming languages	J277/02: Computational thinking, algorithms and Programming • Programming languages