Pyrland School

Computing

Curriculum Booklet for 2026 - 2027

Subject Lead: Mr B Saddington

Midsomer Norton Schools Partnership

Computing Curriculum Intent:

"Everybody should learn how to program a computer… because it teaches you how to think." – Steve Jobs

Computing aims to prepare students for the constantly evolving world outside of the classroom. It will enable them to work and live in an environment that revolves around working with, maintaining and manipulating computer resources. Students also need to know how to be safe and work effectively with computers in a rapidly changing and developing landscape.

Our programme of study aims to develop learner's knowledge, skills and understanding of key computational concepts and experience. We believe that all students can be successful in the world of computing and digital technology.
Our curriculum covers the following strands:

- Information Technology
- Computer Science
- Digital Literacy

These strands build on knowledge that should have been gained at KS2 including programming skills, understanding of networks, sequence selection and iteration and use of a variety of software. Our aim is to ensure that all students develop a depth of knowledge of computer science whilst building awareness and knowledge of Information Technology in the world around them.

The KS3 curriculum aims to ensure learners have sufficient knowledge to stay safe online and use computers safely in life. It also provides a focus on developing resilient learners who are able to recover from mistakes and effectively solve problems. By the end of KS3 all students become able users of ICT, knowledge of how to use, interrogate and programme computers, an awareness of their digital footprint and its impact, and how to be safe in an ever-changing digital climate.

Our KS4 curriculum is designed for students to develop the mind-set of a computer scientist built upon the foundations at KS3. Learners have the opportunity to develop their capability, creativity and knowledge in computer science, digital media and information technology. A key strand through both Key Stages is the development and application of problem-solving skills, something that is key for employability. Students have the opportunities to apply their knowledge to offer solutions to contemporary global challenges.

The courses offered at KS4 enable students to choose between a course that is exam-based and one that is project-based so they can achieve the best outcomes. The curriculum sequences knowledge and skills cumulatively through the teaching of content by unit, followed by the use of online learning platforms in order to help condense and summarise information. Both courses enable students to continue their studies at KS5, with either a vocational or academic focus and pathway; both qualifications prepare students for the next stages with regard to the Level 3 BTEC and A Level Computer Science courses.

Computing Curriculum Implementation:

Students are taught in their maths set groups in KS3 to enable high levels of both challenge and support. In KS4, students are taught in mixed ability groups, and our planning continues to have an emphasis on providing support and challenge for all students.
We sequence the learning in our curriculum so that it becomes more complex over time starting with simpler skills or basic building blocks of knowledge and moving on to combine and layer skills to achieve a more complex outcome. Students are given regular opportunities to practise retrieving and applying their computing knowledge and understanding through low stakes quizzes and formal assessments. Students are also taught how to apply their knowledge and understanding to a range of skills-based, short and long written questions as appropriate for the course undertaken. We support the school's drive on reading by supplying students with a wide range of stimulus materials to work from including reading of different text types.

Key Stage 3

Each lesson and topic are sequenced to build on previous knowledge and understanding. Students will have an E-Portfolio that will be completed each lesson. There will also be a focus on expanding students vocabulary, with key words and definitions being explicitly taught. Finally, each topic will have an online assessment for students to complete.
The Year 9 curriculum has recently been changed so that students can make more informed choices in the Specialised Curriculum process. There is a strong focus on consolidating knowledge on how to respond to a brief and programming skills.

Key Stage 4

KS4 Students are offered two possible routes at KS4; Creative iMedia and GCSE Computer Science. Students are guided to the appropriate course, so that their needs are met as individual learners. The course(s) delivered will depend each year on the demands of each individual cohort.

The GCSE Computer Science curriculum is taught unit by unit. During each unit students conduct three assessments.

- Regular low stakes knowledge assessments
- Recall activities
- A written assessment at the end of the topic

Students experience a spread of questions going back through all previous units to test long term recall.

Extension activities are built into our ePortfolios and help is available for students if they are stuck with a task. 'Support' and 'challenge' activities are included within all of our lessons. Also provided are a range of support learning materials such as video guides, help sheets, key words and sentence expanders which are colourised to ensure all essential components are included.

Allocated Curriculum Time:

	Year 7	Year 8	Year 9	Year 10	Year 11
Lessons per fortnight	**2**	**2**	**2**	**6**	**6**

Year 7 Programme of Study

Term	Curriculum Foci	Formal Assessment
1 / 2	**INTRODUCTION TO ICT and COMPUTER SCIENCE** ● This is a practical unit that covers the usage of the digital systems that form a part of the learning within Pyrland school from logging on to using the various packages installed on our systems. ● Students will be introduced to Bromcom (Please ensure that students have installed the Bromcom app on their mobile devices and have data to access ready for their second lesson). ● They will go on to use various packages such as Google Classroom, email. Students will be taught how to stay safe online and how to conduct internet searches that yield the best results. ● Students will be given a variety of skills that they will be able to use in a variety of subjects.	**Assessment 1:** Online test **Time: 40 mins** **Marks: 76**
2 / 3	**COMPUTER CRIME and SECURITY** ● This unit covers some of the legal safeguards regarding computer use, including overviews of the Computer Misuse Act, Data Protection Act and Copyright Law and their implications for computer use. ● Phishing scams and other email frauds, hacking, “data harvesting” and identity theft are discussed together with ways of protecting online identity and privacy. ● Health and Safety Law and environmental issues such as the safe disposal of old computers are also discussed. ● Safety is discussed outside the realm of e-safety.	**Assessment 2:** Online test **Time: 40 mins** **Marks: 104**
4	**COMPUTER CONTROL** ● This is a practical unit covering the principles of producing control and monitoring solutions using a flowchart-based interface (Flowol 4+). ● Students will start by producing systems that use simple loops and basic outputs and then move on to look at systems that have multiple inputs, outputs and decisions. ● Towards the end of the unit, students will make use of more complex flowcharts that incorporate variables and actuators.	**Assessment 3:** Online test **Time: 40 mins** **Marks: 40**
5	**ALGORITHMS USING SCRATCH** ● Students will use the Scratch environment which most of them will have used at KS2, to start to develop their programming skills. ● Each lesson will result in the students developing a simple game where the skills from the previous lesson will be reused and then students will add additional functionality. ● Students will use skills that they learnt from the Computer control module in term 4 and implement them in a practical manner such as sequencing, selection and iteration.	
6	**UNDERSTANDING COMPUTERS** ● This is a theoretical unit covering the basic principles of computer architecture and use of binary. Students will start to look at the Input-Process-Output sequence and the Fetch-Decode-Execute cycle through practical activities. ● Students will then look at some simple binary to decimal conversion and vice versa and learn how text characters are represented using the ASCII code. ● This will be followed by some simple binary addition. Students will look more in depth at how storage devices store represent data using binary patterns. ● A final lesson covers the history and development of communication and technology, and some of its applications.	**Assessment 4:** Online test **Time: 40 mins** **Marks: 126**

Year 8 Programme of Study

Term	Curriculum Foci	Formal Assessment
1	**DIGITAL GRAPHICS** ● Students will understand and create vector graphics in the first lesson, before looking at how bitmap graphics are stored. ● The second half of the unit gives practical skills in using graphics editing software including the use of layers, isolating images and adding text. ● Students will bring in all the skills they have learnt during the unit to make a greetings card.	**Assessment 1:** Online test **Time: 40 mins** **Marks: 95**
2 / 3	**MODELLING** ● In this unit students will use Google Sheets to be able to predict incomes and expenditures for a fictitious event. ● Students will be taught what a spreadsheet is and how to use them. ● They will be taught a variety of skills such as formula's, charts, conditional formatting, financial forecasting and using lookup sheets to enter data accurately.	**Assessment 2:** Online test **Time: 40 mins**
3	**HTML & CSS** ● Students will learn the basics of HTML and CSS, and how to create a responsive design which adapts to any size of screen for viewing on, say, a mobile phone or a PC. ● They will learn how to create text styles and add content, including text and graphics, in a specified position on a page, as well as navigation links to other pages on their website and to external websites. ● The basics of good design are covered and, with the help of worksheets, students will develop their own templates in a text editor such as Notepad++. ● They will decide on a topic for their own websites, document their designs and collect suitable text and images. ● Students can view the data collected by the web form into a simulated database. This also helps to stimulate discussion on the privacy of data.	**Assessment 3:** Online test **Time: 40 mins** **Marks: 41**
4	**NETWORKS** ● This is a theoretical unit covering the basic principles and architecture of local and wide area networks. ● Students will learn that the World Wide Web is part of the Internet, and how web addresses are constructed and stored as IP addresses using DNS. ● Students will learn about data transmission and through an understanding of different network topologies and network hardware, they will plan the structure of a local area network. ● Client-server, peer-to-peer networks and the concept of cloud computing are all described. ● Ways of keeping data secure and simple encryption techniques are also covered.	**Assessment 4:** Online test **Time: 40 mins** **Marks: 119**
5 & 6	**PYTHON** ● This is an introduction to Python which builds on skills learnt in the Year 7 Scratch module. ● Although Python is an object-oriented language, at this level the object-oriented features of the language are barely in evidence and do not need to be discussed. ● The focus is on getting students to understand the process of developing programs, the importance of writing correct syntax. ● Students will look at If statements and While loops whilst covering concepts such as validation and searching.	

Year 9 Programme of Study

Term	Curriculum Foci	Formal Assessment
1 & 2	**ECO GAMES** ● Students will combine all of the skills learnt across KS3 into a single project, which will utilise skills that students will have to use in both GCSE Computer science and the BTEC Creative iMedia. ● Students will be given a brief for a project for an Eco Games project. They will have to design and create a new logo for a computer game. ● They will then use their Scratch programming skills to create the game itself. ● To promote the game, they will design and create a promotional video for the game, before designing a social media graphic. ● The students will create an online chatbot to answer questions about the game before finally wrapping the whole product into an interactive kiosk to show off their work.	**Assessment 1 and 2:** 2 Online tests **Time: 40 mins** **Marks: Test 1 - 38** **Marks: Test 2 - 38**
3	**ARTIFICIAL INTELLIGENCE** ● This unit gives students a first insight into the fascinating world of Artificial Intelligence and Machine Learning. ● Students begin by considering where AI is used from simple problems such as solving a maze to those more advanced, such as self-driving cars. ● Students will then look at how machine learning and deep learning are used in image recognition. ● This is a fast-moving area of development, so the Ethics of AI is considered. ● The following lessons give an opportunity to develop AI programs such as a simple image recognition system, a virtual assistant and a sentiment analysis system for film ratings.	**Assessment 3:** Online test **Time: 40 mins** **Marks: 89**
4	**FURTHER PROGRAMMING IN PYTHON** ● This unit builds on the knowledge gained in year 8, and the first lesson has a series of tasks designed to revisit the basic skills already covered. ● Students then use 'For Loops' and compare their use with 'While Loops', before moving on to arrays (lists), which are introduced as a new data structure and are used in conjunction with For loops. ● Procedures and functions with parameters are covered to help students understand the concept and benefits of modular programming. ● This unit is designed to take students right up to a point where a GCSE in Computing can pick up and should provide ample experience of programming in order to confirm any decision to pursue Computing as a GCSE option.	**Assessment 4:** Online test **Time: 40 mins**
5 & 6	**IDEA QUALIFICATION** ● Students complete the iDEA qualification in order to develop talents and gain all-important knowledge and information about the digital world. Students can win career-enhancing badges, unlock new opportunities and, ultimately, gain industry-recognised Awards that help them stand out from the crowd. **The iDEA award helps to:** ● Enhance student skills and knowledge of Computing ● Improve your digital literacy ● Learn about staying safe online ● Gain more confident with technology	

GCSE Computer Science Course and Exam details

The Computer Science GCSE will enable students to develop a real, in-depth understanding of how computer technology works, giving them an insight into what goes on 'under the lid' of a computer. You will need to think creatively, innovatively and logically to design and program solutions to real-world problems.

Students will investigate the components that make up digital systems and how they communicate with one another and with other systems, they will also develop an understanding of the impacts of digital technology to the individual and to wider society.

Exam details

Unit 1 - Computer Systems

- *50% Examination*
- A 90-minute written paper examining students' knowledge of computer systems. The paper includes short and long answer questions covering the physical elements of computer science such as computer hardware, wired and wireless networks, system security and software. The paper also covers the social, legal and environmental effects of computer systems.

Unit 2 - Computational thinking, algorithms and programming

- *50% Examination*
- A 90-minute written paper examining students' knowledge of program design and creation. The paper covers data representation in computer systems, logical problem solving and high- and low-level programming.

Online Revision Links:
Craig n' Dave have produced a fantastic set of video tutorials for this course. They can be found here.
https://tinyurl.com/j277videos

Revision Guide Details:
A comprehensive revision book can be found on Amazon for £6.80.
https://tinyurl.com/j277book

Revision Tips
Look at as many of the past papers on the google classroom as possible. Also look at the mark scheme for these and the examiner reports which shine a light on where others have gone wrong in the past.

Please see exam board websites for up-to-date information: https://ocr.org.uk

For more information about the GCSE course, the specification can be viewed at:
GCSE (9-1) Computer Science J277 Specification

Year 10 GCSE Computing Programme of Study
Exam Board: OCR
Exam Specification: J277

Term	Curriculum Foci	Formal Assessment
1	**Systems Architecture** ● The unit begins by looking at the various components of the CPU used in the Von Neumann architecture. ● Subsequent lessons build on the fundamentals covered at KS3 in our Understanding Computers unit, concentrating on RAM, ROM, cache, registers and the need for virtual memory. ● The unit concludes by examining the need for secondary storage devices and their practical advantages in given applications.	**Assessment 1:** Written test: Based on OCR GCSE written paper. **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
2	**Data representation** ● The conversion of integers from denary to binary is covered in the first lessons, together with simple binary addition, overflow and shifts. ● In subsequent lessons, the use of hexadecimal numbers and the binary representation of characters is described. ● Representation of images and sound, and compression techniques are covered in three separate lessons.	**Assessment 2:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
3	**Computer Networks, connections and protocols** ● The unit begins by explaining the Internet and IP addressing, with practical exercises to help students understand the role of packet switching and DNS services. ● The lessons move on to look at star and mesh LAN network topologies and Ethernet. ● Wireless networking and encryption are covered in subsequent lessons. ● Client-server networks and hosting are addressed with a final lesson describing common protocols and the concept of layers.	**Assessment 3:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
4	**Network Security and Systems software** ● This unit begins by looking at the threats and vulnerabilities of computer systems and programs, including social engineering and the concept of SQL injection. ● Encryption and penetration testing are covered as examples of various methods of preventing vulnerabilities. ● The unit continues to focus on operating systems software, their function and typical utility software programs including defragmentation and compression programs.	**Assessment 4:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
5	**Impacts of digital technology** ● Topic 1 Ethical and cultural issues ● Topic 2 Environmental issues ● Topic 3 Legislation and privacy ● Topic 4 Assessment	**Assessment 5:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
6	**Paper 1 revision and recall** ● Students will spend this term consolidating and revising content learnt throughout the year ahead of an end of year test.	**Assessment 6:** Mock Paper **Time: 90 mins** Students will complete a range of past paper questions and exam technique

Year 11 GCSE Computing Programme of Study
Exam Board: OCR
Exam Specification: J277

Term	Curriculum Foci	Formal Assessment
1	**Algorithms** ● This unit begins by looking at computational thinking, including abstraction and decomposition. ● Two lessons are given to interpreting and comparing relevant searching and sorting algorithms including the merge and insertion sorts. These are written in the new OCR Reference Language. ● Practical experience of writing, tracing and modelling algorithms using pseudocode and flowcharts is then provided. ● Students are then given ample practical experience of correcting and completing algorithms (including debugging and testing) in worksheets and homework tasks.	**Assessment 1:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
2 / 3	**Programming Fundamentals** ● The basic programming constructs are covered as well as string manipulation and file handling. ● Iteration and arrays are subsequently covered, before examining the use of procedures and functions to structure code. ● Finally, records and the use of SQL to search for data are covered.	**Assessment 2 / 3:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
4	**Logic and languages** ● This unit begins with a lesson on Boolean logic diagrams and truth tables. ● Testing and error handling is covered using practical examples, including the use of the common tools and functions of an IDE. ● The unit concludes by looking at programming language classifications including translators and low-level languages	**Assessment 4:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
5	**Revision and recall** This term will focus on exam practise and revision and recall for all taught units.	**Assessment 5:** Students will complete a range of past paper questions and exam technique
6	Examination Season – continued revision between exams	**GCSE EXAMS**

Cambridge Nationals – Creative iMedia

Course and Exam details
The new revised Cambridge Nationals in Creative iMedia is designed to engage and enthuse young people with an interest in creative computing (e.g. multimedia, website and digital graphic development).

This qualification will equip them with the knowledge, skills and understanding they need to design and make effective digital products. It teaches young people how to express their creativity in an informed and responsible way and encourage them to reflect on what they produce and strive for excellence. It gives young people the skills they need to support future learning and to exploit the creative and commercial employment opportunities on offer in the digital world in which they are growing up.

Cambridge Nationals - Creative iMedia Level 1/Level 2 - J834

Supporting your child
Coursework accounts for 60% of the course and therefore you can support your child by ensuring they attend any catchups which are set by the IT staff. You can also encourage them to work at home on any improvements which have been suggested.

Ahead of the exam, students should use the presentations we have placed on the google classroom. You could encourage your child to look at these and make notes, flashcards or mindmaps based on this information. There are also video guides on the classroom as well which help explain the content.

Online Revision Links
We have invested heavily in revision resources and these are all placed on your child's google classroom. Students need to revise for the exam using the presentations on the google classroom.

Revision Guide Details
A more comprehensive revision book can be found on Amazon for £8.
https://tinyurl.com/r834-revision

Revision Tips
Look at as many of the past papers on the google classroom as possible. Also look at the mark scheme for these and the examiner reports which shine a light on where others have gone wrong in the past.

Year 10 iMedia Programme of Study
Exam Board: OCR
Exam Specification: J834

Term	Curriculum Foci	Formal Assessment
1	**Unit R097: Planning interactive digital media** ● The first two topics cover the format types, content and hardware used for interactive digital media, including images, video, forms and navigation buttons. ● The features of interactive digital media are covered in topic three including GUIs, interaction styles and accessibility, while conventions and creativity are considered in topic four. ● Topic five has a thorough consideration of the hardware and software used to create interactive digital media. ● Pre-production and planning documentation are all covered in the final three topics. These include wireframes, master page/template design, storyboards, navigation and hierarchy diagrams, and asset tables.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**
2	**Unit R097: Planning interactive digital media** ● This unit starts by covering the sourcing of suitable assets. ● The next three topics consider the asset types of static images, audio and moving image techniques such as cut, split, trim and extend. ● Finally, interactive assets including diagrams, maps, buttons, banners, navigation bars and forms are covered in topic 5.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**
3	**Unit R097: Creating, publishing and reviewing** ● The first topic considers the folder structure and file naming conventions that students need to create. ● Topics 2 and 3 consider master pages and how they are constructed using presentation software. Content, controls, triggers and behaviours are all also covered in the third topic followed by saving and exporting. ● A thorough consideration of the techniques to test interactive digital media is given in topic five. ● The last two topics show students how to review their interactive digital media product and how to suggest improvements and further developments.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**
4 / 5	**Unit R097: Live assessment** ● Students will work on the live assessment for term 4 and part of term 5.	**Live Non-Examined Assessment**
5	**Unit R094: Visual Identity** ● The first two topics begin by looking at the purpose, elements and design of visual identity including logos, typography, colour palettes and layout. ● Topic 3 carefully considers further design and layout concepts such as white space, alignment and colour systems. Technical properties of graphics file formats are covered in Topic 4. ● Topic 5 covers the sourcing of assets along with licences and permissions. ● Finally Topic 6 considers the pre-production documents that are relevant to digital graphics such as mood boards, concept sketches and visualisation diagrams.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**
6	**Unit R094: Developing visual identity and assets** ● Topic 1 of this unit begins by looking at how assets are sourced. In the second topic, students look at how to create a number of different logos. Students then cover how to compile an image using a range of design tools and techniques. Coverage of file formats and resolution is covered in the final lesson. ● Topics 2-6 include practical projects that students should try to replicate. These cover many image-editing techniques that students should be aware of.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**

Year 11 iMedia Programme of Study
Exam Board: OCR
Exam Specification: J834

Term	Curriculum Foci	Formal Assessment
1	**Unit R094: Creating visual identity and digital graphics continued.** ● Topic 1 of this unit begins by looking at how assets are sourced. In the second topic, students look at how to create a number of different logos. Students then cover how to compile an image using a range of design tools and techniques. Coverage of file formats and resolution is covered in the final lesson. ● Topics 2-6 include practical projects that students should try to replicate. These cover many image editing techniques that students should be aware of. Each of the seven topics may be spread over more than one lesson, especially if time is spent in the lessons working on the projects, exercises and going over homework tasks. The final topic considers the saving and exporting of digital graphics.	**Practical assessment to assess skills taught to date.** **Time: 40 Mins** **Marks: 40**
2	**Unit R094: Live assessment** ● Students will work on the live assessment for term 2	**Live non examined assessment**
3	**Unit R093: Media industry and product design** ● Topic 1 of this unit begins by looking at how assets are sourced. In the second topic, students look at how to create a number of different logos. Students then cover how to compile an image using a range of design tools and techniques. Coverage of file formats and resolution is covered in the final lesson. ● Topics 2-6 include practical projects that students should try to replicate. These cover many image editing techniques that students should be aware of. The final topic considers the saving and exporting of digital graphics.	**Assessment 1:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
4	**Unit R093: Pre-production planning** ● Workplans are covered in Topic 1 with the next six topics looking at the different pre-production planning documents that are used when making media products. ● Topic 2 covers mind maps whilst Mood boards are given in Topic 3. ● Scripts and storyboards are covered in Topic 4 and 5 with a heavy emphasis on television and film production. ● Topic 6 considers visualisation diagrams and will be very useful for the mandatory graphics unit. ● In Topic 7, wireframes and flowcharts are considered – for use in web design. ● Finally, in Topic 8, the hardware and software required to make pre-production documents is considered.	**Assessment 2:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**
5	**Unit R093: Legal Issues and Distribution and Revision** ● The first topic considers the legal considerations to protect individuals, including relevant laws such as privacy, permissions and defamation. The topic also considers regulation, certification and classification, including the role of the ASA, Ofcom, BBFC and PEGI. ● Intellectual Property is carefully considered in Topic 2. ● Health and safety is covered in topic 3 with a focus on risk assessments and location recces. ● Topic 4 considers the different online and physical platforms available along with physical media. ● Students will spend the rest of the term and revising and practising exam technique	**Assessment 3:** Written test: Based on OCR GCSE written paper **Time: 40 mins** **Weekly deep thinking questions based on prior learning.**