

Year 7: Our curriculum intent is:

The curriculum for computer science 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.

We place the utmost importance on safeguarding and promoting the welfare of our students through our comprehensive and progressive e-safety focus.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic	Collaborating online respectfully <i>Learn about the safe use of content and contact online.</i>	Programming (Scratch) <i>Design and apply programming constructs, in order to solve a real-world problem (i.e. the sequence in which a driverless car would respond to variables)</i>	Computer Systems <i>Understand the hardware and software components that make up computer systems.</i>	Networks <i>Learn what a computer network is and the different structures.</i>	Advertising/ Blogging <i>Students create a blog post about a real-world cause that they would like to gain support for.</i>	App Development (Blippit) <i>Design and Develop an App for a given criteria and then evaluate its success.</i>
Subject Specific Skills	Analysis, critical thinking and making informed decisions.	Problem solving, sequencing.	Evaluate and apply information technology.	Examine new or unfamiliar technologies.	Develop software formatting skills and explore legal issues.	Develop an app by building on programming concepts.
Previous Links	National Curriculum link to KS3 and reference to previous skills from KS2 are available to demonstrate how the Computing Curriculum, strengthens students prior learning and develops these skills further. Useful Website Resource to develop student's problem-solving skills: https://code.org/					
Cross-curricular Skills	HD /English– Critical Thinking, ID Bias, Fictional content	Maths/DT- Problem Solving, Logical Thinking, Sequencing	DT- Logical Thinking Abstraction, Decomposition Science- Analogue and Digital Sound	Maths – Logic, Number Bases, Powers, Unit Conversion	HD/English – Presenting an Argument. Use of Emotive Language Art- Imagery	Maths – Sequencing DT- Innovation, Plan, Design and Evaluate.

Post 16 and beyond:

The structure and content of our curriculum leads into the KS4 and KS5 examined content which includes a greater focus on data modelling, collaborating online and the use of networks. In the Computing Faculty, we provide students with essential skills and knowledge to prepare them for the next step in their lives. This could be further education undertaking courses such as the effective use of IT in business, training, or work in the field of Digital Technology, IT Consultancy or future technologies. We provide a broad and accessible curriculum with engaging, knowledge-rich subject content which will prepare students for their digital life

Year 8: Our curriculum intent is:

The curriculum for computer science 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.

We place the utmost importance on safeguarding and promoting the welfare of our students through our comprehensive and progressive e-safety focus.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Computing Theory Learn about the internal workings of the computing; both physical and conceptual.	Website Design HTML Demonstrate skills in designing, structuring, creating and evaluating a website.	Data Representation learn how to convert between number bases, how characters are stored and its link to compression.	Python (Repl.it) Write and execute a program using inputs, outputs, variables, conditions and loops.	(Photoshop/Photopea) Format, transform, combine, enhance and create your own images using layers.	Game Development Develop a game through configuring scenes, creating characters and identifying conditioned events.
Subject Specific Skills	Analysis of the symbiotic relationship between hardware and software	Design solutions for specific target audiences and accessibility needs	Undertake arithmetic and logical calculations and conversions between number bases.	Problem solving via sequence, selection and iteration.	Develop software formatting skills and explore legal issues.	Develop a game by building on programming concepts.
Previous Links	National Curriculum link to KS3 are available to demonstrate how the Computing Curriculum, strengthens students prior learning and develops these skills further. Useful Website Resource to develop students programming skills: https://www.w3schools.com/					
Cross-curricular Skills	Science – Circuits, electricity.	Maths/DT- Problem Solving, Logical Thinking, Sequencing. English – Choice of language and content.	Maths – Logic, Number Bases, Powers, Unit Conversion	DT- Logical Thinking Abstraction, Decomposition English – Command Words	Maths – File sizes, DT- Innovation -storage of images and colour representation.	Maths – Sequencing DT- Innovation, Plan, Design and Evaluate.

Post 16 and beyond: The structure and content of our curriculum leads into the KS4 and KS5 examined content which includes a greater focus on data modelling, collaborating online and the use of networks. In the Computing Faculty, we provide students with essential skills and knowledge to prepare them for the next step in their lives. This could be further education undertaking courses such as the effective use of IT in business, training, or work in the field of Digital Technology, IT Consultancy or future technologies. We provide a broad and accessible curriculum with engaging, knowledge-rich subject content which will prepare students for their digital life.

Year 9: Our curriculum intent is:

The curriculum for computer science 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.

We aim to ensure students have a depth and breadth of computational skills by the end of KS3, allowing them to make informed choices for KS4.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Animation (Blender) Create an animation using rendering and modelling.	Python (Repl.it) Write programs that display messages, receive keyboard input, and use simple arithmetic expressions in assignment statements	Cyber Security Recognise how both internal and external threats pose security risks to data and identify strategies to minimise these risks.	Design Vector Graphics Manipulate images and use multiple tools to create a vector graphic design	Data Representation: and experience how an image composed of individual coloured elements and digital sound sampling correspond to a sequence of binary digits.	Spreadsheets Learners will use formatting skills, basic and complex formulae and graphical representation to manipulate and present numerical data.
Subject Specific Skills	Modelling, texturing, and animating.	Problem solving via sequence, selection and iteration. Use of variables, assignment and block coding.	Evaluate and apply information technology to provide solutions	Develop software formatting skills and explore legal issues.	Undertake arithmetic and logical calculations and conversions between number bases.	Use of complex formulae and functions and represent numerical data graphically.
Links (Nat curr, Lit, Numeracy)	National Curriculum link to KS3 are available to demonstrate how the Computing Curriculum, strengthens students prior learning and develops these skills further. Useful Website Resource to develop students programming skills: https://www.w3schools.com/					
Transferable Skills	DT – Innovation – 3D Modelling	Maths/DT- Problem Solving, Logical Thinking, Sequencing.	HD – provide justifications for your choices.	DT- Logical Thinking Abstraction, Decomposition English – Command Words	Maths – Logic, Number Bases, Powers, Unit and conversion.	Maths – Types of graphs, and arithmetic calculations.

Post 16 and beyond: The structure and content of our curriculum leads into the KS4 and KS5 examined content which includes a greater focus on data modelling, collaborating online and the use of networks. In the Computing Faculty, we provide students with essential skills and knowledge to prepare them for the next step in their lives. This could be further education undertaking courses such as the effective use of IT in business, training, or work in the field of Digital Technology, IT Consultancy or future technologies. We provide a broad and accessible curriculum with engaging, knowledge-rich subject content which will prepare students for their digital life.

Year 10: Our curriculum intent is: To provide all pupils with the opportunity to study aspects of information technology at sufficient depth to allow them to progress to higher levels of study or to a professional career.

All pupils will 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 report a range of concerns

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Component 1: Exploring User Interface Design Principles and Project Planning Techniques This is an internal assessment that contains 3 learning aims and is worth 30% of the final marks. For each learning aim pupils will need to complete an assignment. •Learning Aim A – Investigate user interface design for individuals and organisations •Learning Aim B – Use project planning techniques to plan and design a user interface •Learning Aim C – Develop and review a user interface			Component 2: Collecting, Presenting and Interpreting Data This is an internal assessment that contains 3 learning aims and is worth 30% of the final marks. For each learning aim pupils will need to complete an assignment. •Learning Aim A – Investigate the role and impact of using data on individuals and organisations •Learning Aim B – Create a dashboard using data manipulation tools •Learning Aim C – Draw conclusions and review data presentation methods		
Subject Specific Skills	In this component, pupils will: Learn about the different design principles that can be used to design effective user interfaces and apply appropriate project planning techniques to create a user interface that meets user requirements.			In this component, pupils will: Learn about the different presentation features that can be used to ensure that information is understood clearly in an objective way so that it is not misinterpreted.		
Links (Nat curr, Lit, Numeracy)	Links to the KS4 BTEC Tech Award taught at KS4 can be found here . This shows the natural progression students undertake between Year 10 and Year 11 course content. Further links to prior KS3 National curriculum content can be found here to demonstrate how the KS4 Curriculum, strengthens student’s prior learning and develops their skills further.					
Transferable Skills	DT- Innovation, Plan, Design and Evaluate. Provide creative solutions for a given purpose.			Maths – Types of graphs, and complex arithmetic calculations. Maths/DT- Problem Solving, Logical Thinking, Sequencing.		

Post 16 and beyond: BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit based structure and knowledge applied in project-based assessments. They focus on the holistic development of the practical, interpersonal and thinking skills required to be able to succeed in employment and higher education. Pearson have worked with many employers, higher education providers, colleges and schools to ensure that their needs are met. Employers are looking for recruits with a thorough grounding in the latest industry requirements and work-ready skills such as teamwork. Post 16 education needs students who have experience of research, extended writing and meeting deadlines.

Year 10: Our curriculum intent is: we aim to develop a course that promotes critical thinking, analysis and problem-solving skills through the study of computer programming. Giving students a fun and interesting way to develop skills which can be transferred to other subjects and applied in day to day life.

All students will develop the following skills:

- Demonstrate knowledge & understanding of the key concepts & principles of Computer Science.
- Apply knowledge & understanding of key concepts & principles of Computer Science.
- Analyse problems in computational terms to make reasoned judgements & to design, program, evaluate & refine solutions.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description) Paper 1	3.1 Fundamentals of algorithms 3.1.1 Representing Algorithms 3.1.2 Efficiency of Algorithms 3.1.3 Searching Algorithms 3.1.4 Sorting Algorithms		3.2 Programming 3.2.1 Data Types 3.2.2 Programming Concepts 3.2.3 Arithmetic Operations in a Programming Language		3.2 Programming 3.2.4 Relational Operations in a Programming Language 3.2.5 Boolean Operations in a Programming Language 3.2.6 Data Structures 3.2.7 Input/Output	
Paper 2	3.3 Fundamentals of data representation 3.3.1 Number Bases 3.3.2 Converting Between Number Bases 3.3.3 Units of Information 3.3.4 Binary Arithmetic		3.3 Fundamentals of data Rep 3.3.5 Character Encoding 3.3.6 Representing Images 3.3.7 Representing Sound 3.3.8 Data Compression		3.4 Computer systems 3.4.1 Hardware and Software 3.4.2 Boolean Logic 3.4.3 Software Classification 3.4.4 Classification of Programming Languages and Translators 3.4.5 Systems Architecture	
Links (Nat curr, Lit, Numeracy)	Links to the KS4 AQA Computer Science GCSE taught at KS4 can be found here . This shows the progression students undertake through the Year 10 and Year 11 linear examined course content. Further links to prior KS3 National curriculum content can be found here to demonstrate how the KS4 Curriculum, strengthens student’s prior learning and develops their skills further.					
Transferable Skills	Maths - basic understanding of calculus, algebra, discrete mathematics, and statistics. DT- Problem Solving, Logical Thinking, Sequencing					

Post 16 and beyond: Through studying GCSE Computer Science, students develop problem-solving, critical thinking and complex analytical skills. Additionally, this course provides a clear progression route onto post 16 qualifications or apprenticeships such as Electronics and Engineering. Beyond this, studying Computer Science opens up a range of high demand careers in areas such as software development, cyber security and database management. However, as most businesses rely on computers to function effectively, there are also opportunities within the IT departments of major organisations in sectors such as: aerospace and defence, agricultural, financial services, healthcare, manufacturing, retail and telecommunications.

Year 12: Our curriculum intent is to equip students with the knowledge and skills required to prepare them for further study or training. Students study the relationship between hardware and software, managing and communicating information and data, and the principles of designing and developing digital technologies and processes to support organisations. Students study a 2 year course: Level 3 BTEC National Extended Certificate in Information Technology.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Unit 5 - Data Modelling - Internal Unit In this unit, students will investigate the fundamentals of the decision-making process. Students will find out how using data modelling provides the computational ability to compare consequences, and determine a preferred course of action. They will develop the skills and techniques necessary to create complex spreadsheets, in order to produce accurate information that informs decision making. Students will examine a scenario and then design, develop and test a spreadsheet; you will review your spreadsheet and make refinements based on user feedback, providing an evaluation of the effectiveness of the alternatives produced.			Unit 2 - Creating Systems to Manage Information (5 Hour Controlled Assessment) This unit examines the structure of data, its origins and how an efficient data design follows through to an effective and useful database. Students examine the purpose and structure of relational database management systems and standard methods and techniques to design relational database solutions. The assessment task requires students to design, create, test and evaluate a relational database system to meet a given brief.		
Subject Specific Skills	• cognitive and problem-solving skills: use critical thinking, approach non-routine problems applying expert and creative solutions, use systems and technology • intrapersonal skills: communicating, working collaboratively, negotiating and influencing, self-presentation • interpersonal skills: self-management, adaptability and resilience, self-monitoring and development.					
Links (Nat curr, Lit, Numeracy)	Links to the KS4 BTEC Tech Award taught at KS4 can be found here . This shows the natural progression students undertake between KS4 and 5. KS5 content provides an opportunity for the continuation of learning, with a greater breadth and depth. Further links to prior KS3/4 National curriculum content can be found here .					
Transferable Skills	Maths – Types of graphs, and complex arithmetic calculations. Maths/DT- Problem Solving, Logical Thinking, Sequencing. DT- Innovation, Plan, Design and Evaluate.			Maths/DT- Problem Solving, Logical Thinking, Sequencing. DT- Innovation, Plan, Design and Evaluate. Provide creative solutions for a given purpose.		

Post 16 and beyond:

BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit-based structure and knowledge applied in project-based assessments. They focus on the holistic development of the practical, interpersonal and thinking skills required to be able to succeed in employment and higher education. Pearson have worked with many employers, higher education providers, colleges and schools to ensure that their needs are met. Employers are looking for recruits with a thorough grounding in the latest industry requirements and work-ready skills such as teamwork. Higher education needs students who have experience of research, extended writing and meeting deadlines.

Year 13: Our curriculum intent is to equip students with the knowledge and skills required to prepare them for further study or training. Students study the relationship between hardware and software, managing and communicating information and data, and the principles of designing and developing digital technologies and processes to support organisations. Students continue to study in the second year of the 2-year course: Level 3 BTEC National Extended Certificate in Information Technology.

Term	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer 1	Summer 2
Topic (brief description)	Unit 1 - Information Technology Systems – External Examined Unit This unit students explore the use of digital devices, peripheral devices, computer software and emerging technologies in IT systems. The concepts, process and implications of transferring data within and between IT systems. Online systems and online communities – benefits and risks. The issues and implications of storing and transmitting information in digital form. The uses, issues and implications of IT systems and their impact on individuals and organisations including the legal, moral and ethical issues relating to the use of IT.			Unit 3 - Using Social Media in Business – Internal unit This unit students consider the use of social media by businesses to promote their products and services. They explore available social media websites. The ways in which businesses use social media to promote their products and services, the impact of the use of social media on the businesses, including risks and issues. Students develop a plan to use social media strategies for business purposes to achieve specific aims and objectives, implement their plan, collect data and review the effectiveness of their strategy.		
Subject Specific Skills	- cognitive and problem-solving skills: use critical thinking, approach non-routine problems applying expert and creative solutions, use systems and technology - intrapersonal skills: communicating, working collaboratively, negotiating and influencing, self-presentation - interpersonal skills: self-management, adaptability and resilience, self-monitoring and development.					
Links (Nat curr, Lit, Numeracy)	Links to the KS4 BTEC Tech Award taught at KS4 can be found here . This shows the natural progression students undertake between KS4 and 5. KS5 content provides an opportunity for the continuation of learning, with a greater breadth and depth. Further links to prior KS3/4 National curriculum content can be found here .					
Transferable Skills	Maths/DT- Problem Solving, Logical Thinking, Sequencing. HD/English – Point, evidence and explanation. Justification of choices made.			Maths/DT- Problem Solving, Logical Thinking, Sequencing. DT- Innovation, Plan, Design and Evaluate. Provide creative solutions for a given purpose.		

Post 16 and beyond: BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit-based structure and knowledge applied in project-based assessments. They focus on the holistic development of the practical, interpersonal and thinking skills required to be able to succeed in employment and higher education. Pearson have worked with many employers, higher education providers, colleges and schools to ensure that their needs are met. Employers are looking for recruits with a thorough grounding in the latest industry requirements and work-ready skills such as teamwork. Higher education needs students who have experience of research, extended writing and meeting deadlines. The qualification supports entry to, for example:

- HND in Business
- BA (Hons) in Computer Arts
- BSc (Hons) in Fashion Buying Management
- BSc (Hons) in Software Development for Animation and BA (Hons) in Accounting and Finance.