

Computing Curriculum Overview 2023-24

The Computing curriculum in Years 7 and 8 is delivered through the ATL Curriculum and assignments.

	Summer 2
Year 7 curriculum overview	<p>Programming Essentials - Scratch How can we develop a story using the programming language Scratch?</p>
Skills	Block based programming, Algorithmic thinking, abstraction, decomposition, testing and evaluating
Personal Development links	Computational thinking/ Critical thinking, attention to detail
Career links	Programmer, software developer

	Summer 1
Year 8 curriculum overview	<p>Gameplay Mechanics How can we create video games?</p>
Skills	Algorithmic thinking, abstraction, decomposition, testing and evaluating
Personal Development links	Communication, team work, leadership, Understanding that there would be different possibilities of outputs depending on the different inputs, time management, organisation & research

Computing Curriculum Overview 2023-24

Career links	Software development, game development, web designer
---------------------	--

Computing	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 9 curriculum overview	Python Introduction	Spreadsheets	Python Introduction	Spreadsheets	Python Introduction	Computer security and Cyber crime
Skills	Algorithmic thinking, Decomposition, Abstraction, problem solving, ability to choose data types, testing data	Organise data, analyse, calculate, sort and filter data, create graphs.	Algorithmic thinking, Decomposition, Abstraction, problem solving, ability to choose data types, testing data	Organise data, analyse, calculate, sort and filter data, create graphs.	Algorithmic thinking, Decomposition, Abstraction, problem solving, ability to choose data types, testing data	Cyber security, Phishing, Malware, Legislations
Personal Development links	Computational thinking/ Critical thinking	Analysing and organising	Computational thinking/ Critical thinking	Analysing and organising	Computational thinking/ Critical thinking	Communications, problem solving, attention to detail, understanding of hacking
Career links	Software development, game development, web designer	Accountancy, IT, Research, Data entry,	Software development, game development, web designer	Accountancy, IT, Research, Data entry,	Software development, game development, web designer	Cyber security Analyst, Machine learning (AI) engineer, Data scientist

Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit 1.1	Unit 2.1 , 2.2, Python Programming	Unit 2.3, Python Programming	Unit 2.5, Python Programming	Unit 2.4, Python Programming	Unit 1.6, Python Programming
Year 10	System Architecture	Algorithms	Producing robust	Programming languages	Boolean Logic	<ul style="list-style-type: none"> • Ethical , legal,

Computing Curriculum Overview 2023-24

curriculum overview	<ul style="list-style-type: none"> • The purpose of the CPU • Common CPU components and their functions • Von Newmann architecture • CPU performance • Embedded systems 	<ul style="list-style-type: none"> • Computational thinking • Designing creating and refining algorithms • Searching and sorting algorithms <p>Programming fundamentals</p> <ul style="list-style-type: none"> • Programming fundamentals • Data types • Additional programming techniques 	<p>programs</p> <ul style="list-style-type: none"> • Defensive design • Testing 	<p>and IDE</p> <ul style="list-style-type: none"> • Languages • The Integrated Development Environment (IDE) 		<p>cultural and environmental impacts of digital technology</p> <ul style="list-style-type: none"> • Legislations relevant to Computer Science
Skills	<p>Understand the purpose of the components, actions during F-D-E cycle, Familiarity with a range of embedded systems</p>	<p>Principles of computational thinking,producing flow diagrams, writing pseudocode,practical use of programming techniques using high-level language (Python)</p>	<p>Understanding the issues a programmer should consider. Understanding the importance of authentication and testing.</p>	<p>Understanding the difference between high level and low level languages. Understanding the difference between Interpreter and Compiler.</p>	<p>Recognising Logic gates, creating logic gates and truth tables</p>	<p>Understand the issues around using technology and explain the purpose of legislations relevant to Computer Science</p>
Personal Development links	<p>Understanding how every component is important in the effective functioning of the computer</p>	<p>Create a program using decomposition, abstraction and algorithmic thinking, debugging.</p>	<p>Identifying errors and solving them.Foresightful during the designing and development process.</p>	<p>Understanding the difference between interpreter and compiler using real life scenarios.</p>	<p>Understanding that there would be different possibilities of outputs depending on the different inputs .</p>	<p>Ability to discuss the impact of technology based on the issues listed. Identify and recommend a type of licence for a given scenario.</p>

Computing Curriculum Overview 2023-24

Career links	System Architect, Technical architect, software developer	Programmer, Software developer, product management	Data engineer, Data analysis, Data scientist	IDE Solutions architect, Software engineer	Electronics engineer, Radio Frequency design engineer	Programmer, Software developer, legal services
---------------------	---	--	--	--	---	--

Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit 1.2	Unit 1.3	Unit 1.4 , 1.5	Programming Project	Revision	Revision/Exams
Year 11 curriculum overview	Memory and Storage <ul style="list-style-type: none"> ● Primary storage ● Secondary storage ● Units & Data storage ● Compression 	Computer networks, connections and protocols <ul style="list-style-type: none"> ● Networks and topologies ● Wired and wireless networks, protocols and layers 	Network security <ul style="list-style-type: none"> ● Threats to computer systems and networks ● Identifying and preventing vulnerabilities Systems Software <ul style="list-style-type: none"> ● Operating systems ● Utility software 	Design, Write, Test and Refine a programming task using Python	Paper 1 & Paper 2	Paper 1 & Paper 2
Skills	Understand the need for different types of storage devices and explain their purposes	Able to identify and explain the purpose of different types of networks and the factors that can affect the performance	Understanding the different threats and prevention methods and the purpose of utility software	Solving problems using CT.	Revision	Revision

Computing Curriculum Overview 2023-24

Personal Development links	Using real life scenarios to understand the different types of storage devices	Identifying the components of a network from their own homes and identifying their purposes.	Understanding the prevention methods to limit attacks on their devices. Understanding the importance of housekeeping tasks to keep their devices safe and fit for purpose.	Logical thinking, structuring answers.	Time management, organisation, research,	Reasoning, decision making, commitment, overcoming obstacles
Career links	Hardware engineer, Infrastructure automation engineer	Network engineer, Network manager, Network analyst	System integration engineer, Cyber security advisor	Programmer, software developer		

AS & A level Computer Science Curriculum Overview 2024-26

Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit 1.1	Unit 1.1	Unit 1.2	Unit 1.3	Unit 1.4	Unit 2.3
Year 12 curriculum overview	<ul style="list-style-type: none"> The characteristics of contemporary processors, input, output and storage devices 	<ul style="list-style-type: none"> The characteristics of contemporary processors, input, output and storage devices 	<ul style="list-style-type: none"> Software and software development 	<ul style="list-style-type: none"> Exchanging data 	<ul style="list-style-type: none"> Data types, data structures and algorithms 	<ul style="list-style-type: none"> Algorithms
Skills	Understand the purpose of the components, actions during F-D-E cycle,	Understand the purpose of the components, actions during F-D-E cycle,	Identifying the different types of software and the different methodologies	Understanding how data is exchanged between different systems	Understanding how data is represented and stored within different	Understand what is meant by computational thinking.

Computing Curriculum Overview 2023-24

	Familiarity with a range of embedded systems	Familiarity with a range of embedded systems	used to develop software		structures.How different algorithms can be applied to these structures	
Personal Development links	Understanding the minute concepts of computing and how it can be applied to the wider world in every aspects of life.	Understanding the minute concepts of computing and how it can be applied to the wider world in every aspect of life.	Understanding the importance of planning and refining the planning by applying it to their own lives.	Communication	Structuring and organising	Use of algorithms to solve a problem
Career links	Programmer, Software developer,legal services	Programmer, Software developer	Software development, game development, web designer	Hardware engineer, Infrastructure automation engineer	Programmer, Software developer,product management	Programmer, Software developer,product management

Computer Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Unit 1.5,2.1	Unit 2.2	Unit 3.1	Unit 3.2	Unit 3.3	Unit 3.4
Year 13 curriculum overview	<ul style="list-style-type: none"> Legal, moral, cultural and ethical issues Elements of computational thinking 	<ul style="list-style-type: none"> Problem solving and programming 	<ul style="list-style-type: none"> Analysis of the problem 	<ul style="list-style-type: none"> Design of the solution 	<ul style="list-style-type: none"> Developing the solution 	<ul style="list-style-type: none"> Evaluation
Skills	Understanding the individual risks of digital technology from the list. Understanding the legislations surrounding the use of computers and ethical issues that can or may in future arise from	Understanding how computers can be used to solve problems and programs can be written to solve them	Problem identification	Decompose the problem	Develop the solution	Testing and evaluation

Computing Curriculum Overview 2023-24

	the use of computers					
Personal Development links	Ability to discuss the impact of technology based on the issues listed. Identify and recommend a type of licence for a given scenario.	Problem solving	Describe the features that make the problem solvable by computational methods. Identity stakeholders in any given scenario	Able to break down a problem into smaller parts to make it easy to solve.	Designing a solution to a problem	Testing and evaluating own work
Career links	System analyst	Software developer	Application programmer	Software developer	Software developer	Software developer