KS3 Computing and IT: Long term overview

The national curriculum for computing 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.

Main curriculum

National Curriculum coverage in green. Computing taxonomy in magenta.

	Focus / Topic	Knowledge & Skills	Assessment
Year 7 Autumn	7.0 Digital Literacy 3.9 SS	Details of our IT learning resources, usernames and passwords, exercise books and Chace Presentation Standards	*Verification of class and home learning tasks.*
	7.1 Using the microbit for primary to secondary transition ➔ micro:bit countdown ➔ Basketball throw strength 3.2, 3.3 PG	To help learners transition from KS2 to KS3 in computing, bridging the gap by using familiar teaching methods while introducing the new environment.	*This prepares learners for the academic challenges of KS3, building confidence for a smooth transition.*
	7.2 Networks from semaphores to the Internet ➔ Computer networks and protocols ➔ Networking hardware ➔ Wired and wireless networks ➔ The Internet ➔ Internet services ➔ The World Wide Web 3.5 CS IT NW SS	Recognising networking hardware and explaining how networking components are used for communication.	Summative assessment.

C. Tsangari, Subject Leader of Computing and IT.. First revision: March 2023, second revision: May 2023, third revision: July 2024, fourth revision: July 2025

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Main curriculum

National Curriculum coverage in green. Computing taxonomy in magenta.

	Focus / Topic	Knowledge & Skills	Assessment
Year 7 Spring	7.3 Spreadsheets ➔ Getting to know a spreadsheet ➔ Quick calculations ➔ Collecting data ➔ Modelling data 3.1, 3.7 DI ET PG	Sorting and filtering data and using formulas and functions in spreadsheet software.	Summative assessment.
Year 7 Summer	7.4 Clear messaging in digital media ➔ Combining the use of digital tools and online collaboration to produce media 3.8, 3.9 CM DD ET	This course teaches you to create impactful presentations. You'll learn to research topics, design engaging visuals, and deliver clear messages with confidence.	Evaluation of work against a rubric.
	7.5 Using media – Gaining support for a cause ➔ Creating a digital product for a real-world cause 3.7, 3.8 CM DD ET IT	This course equips you with essential digital literacy skills. You'll learn to master word processing software, find and use images responsibly, evaluate sources for credibility, and create and manage your own blog with proper citation practices.	Evaluation of work against a rubric and an optional, summative assessment.
Year 8 Autumn	8.1 Layers of computing systems ➔ Software ➔ Hardware components ➔ Logic ➔ Intelligent systems 3.4, 3.5, 3.6 CS DI IT PG	Exploring the fundamental elements that make up a computer system.	Summative assessment.

Main curriculum

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	Focus / Topic	Knowledge & Skills	Assessment
	8.2 Representations: from clay to silicon ➜ History of representation using sequences of symbols ➜ Representation using binary symbols and why computer need them ➜ Denary to binary numeracy ➜ Convert between units and multiples of representation size. 3.6 CS DI	Representing numbers and text using binary digits.	Summative assessment.
Year 8 Spring	8.3 Introduction to Python programming ➜ Algorithmic thinking ➜ Fundamentals (displaying messages, assigning values to variables and receiving input from the keyboard) ➜ Binary Selection, multi-branch Selection, and Iteration to control flow of program execution 3.1, 3.2, 3.3, 3.6 AL CS PG	Applying the programming constructs of sequence, selection, and iteration in Python. Structured programming through PRIMM (predict, run, investigate, modify, make)	Summative assessment.
Year 8 Summer	8.4 Mobile app development ➜ Decomposition of a problem ➜ Implement and customise GUI (graphical user interface) elements to a brief 3.1, 3.2, 3.3, 3.8 AL DD ET PG	Using event-driven programming to create an online gaming app.	Evaluation of work against a rubric and summative assessment.

Main curriculum

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	Focus / Topic	Knowledge & Skills	Assessment
Year 9 Autumn	9.1 Developing for the web ➔ Crafting web pages using HTML, the language that structures web pages. ➔ Style web pages using CSS ➔ Fundamentals of search engines 3.8 AL CM CS DD DI ET IT NW PG SS	Using HTML and CSS to create webpages. Learn how search engines crawl and rank websites, and how to use them effectively. Understand the impact and potential issues surrounding search technologies.	Optional, summative assessment.
Year 9 Spring	9.2 Data science ➔ How visualising data can provide insights ➔ Select criteria and use data set to investigate predictions ➔ Evaluate findings to support arguments for or against a prediction 3.7 CM DD DI ET IT	Using data to investigate problems and make real-world changes. Investigation cycle through PPDAC (problem, plan, data, analyse, conclusion).	Evaluation of work against a rubric and summative assessment.
	9.3 Representations – going audiovisual ➔ How colour information is stored in binary ➔ How analogue sound is digitised ➔ Numeracy of image and sound resolution respectively 3.6 CM CS DI ET IT	Representing images and sound using binary digits.	Summative assessment.

Main curriculum

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	Focus / Topic	Knowledge & Skills	Assessment
Year 9 Summer	9.4 Introduction of cybersecurity ➔ Privacy and the Data Protection Act ➔ Social engineering ➔ Hacking and the Computer Misuse Act ➔ Protecting against security threats 3.9 CS DD DI ET IT NW PG SS	Identifying how users and organisations can protect themselves from cyberattacks.	Summative assessment
	9.5 Applying programming skills with physical computing ➔ Sensing and controlling with the micro:bit. ➔ Learn to code & build interactive projects in Python. 3.1, 3.2, 3.3, 3.6 AL CS DD DI ET IT NW PG SS	Start by mastering the micro:bit's components, then work in pairs (or independently) to design and prototype your own creation!	Evaluation of work against a rubric and an optional, summative assessment.

Our ancillary curriculum will be available to all learners seeking further agile challenges or have an active interest in certain information and creative technology. These open learning courses will be available on Google Classroom. Active learners can liaise with the subject leader or their teacher for feedback.

Ancillary curriculum

	Focus / Topic	Knowledge & Skills	Contributory assessment
Year 7	7.a Programming essentials in Scratch – part I ➔ Sequencing ➔ Variables ➔ Selection ➔ Operators ➔ Count-controlled iteration 3.2, 3.3, 3.4, 3.8 AL DD PG	Applying the programming constructs of sequence, selection, and iteration in Scratch. Learner application of PRIMM (Predict, Run, Investigate, Modify, Make).	Problem-solving task, followed by evaluation of work against a rubric.
	7.b Programming essentials in Scratch – part II ➔ Subroutines ➔ Condition-controlled loops ➔ Iteration 3.2, 3.3, 3.4, 3.8 AL DD PG	Using subroutines to decompose a problem that incorporates lists in Scratch. Learner application of PRIMM (Predict, Run, Investigate, Modify, Make).	Summative assessment.
Year 8	8.a Media - Vector graphics ➔ Creating vector graphics through objects, layering, and path manipulation. 3.7, 3.8	An opportunity to design graphics using Inkscape, a vector graphic editing software, producing an illustration, a logo, or some icons using vector graphics.	Evaluation of work against a rubric and an optional, summative assessment.
Year 9	9.a Python programming with sequences of data ➔ Lists ➔ Iteration with `while` and `for` loops 3.1, 3.2, 3.3, 3.6 AL CS DD DI ET PG	Manipulating strings and lists. Creating a programming project.	Summative assessment.

Ancillary curriculum

	Focus / Topic	Knowledge & Skills	Contributory assessment
	9.b Media – Animations ➔ 3D Animation Fundamentals ➔ Creating scenes ➔ Craft a short animation, 3-10 seconds long 3.8 CM ET	Creating 3D animations through object manipulation, and tweaking and adjusting lighting and camera angles. Use of Keyframes to control movement Explore different tools like parenting and editing modes for detailed control.	Self-assess against a set of skills, and peer-assessment on completion.
	9.c Database Development ➔ Data Retrieval ➔ Database Design ➔ Data Input ➔ Data Reporting 3.3, 3.4, 3.7, 3.8 DI ET	Writing simple and complex queries to extract specific information based on various conditions (text, logic, comparisons). Design structures including flat tables (simple data) and relational tables (complex data with connections). Create forms to facilitate user-friendly data entry into the database. Generate reports to present and analyse information stored in the database.	Summative assessment.

Ancillary curriculum

	Focus / Topic	Knowledge & Skills	Contributory assessment

	9.d Practical Skills in SQL
	➔ Course following on from Database Development in the main curriculum.
	➔ Extensive practical opportunities to use SQL.
	  ● SQL stands for Structured Query Language. It's a specialised language designed for interacting with relational databases.
	  ● This course covers everything required for GCSE SQL.
	3.3, 3.4, 3.7 DI ET PG
		Learning the basics of SQL commands including SELECT and WHERE and ORDER BY.
		The aggregate functions SUM and COUNT are taught.
		Later topics consider adding and editing data using INSERT and UPDATE statements. Removing data with the DELETE statement and SQL injection..
			Evaluation of work against a rubric.

National Curriculum Statement

Teaching taxonomy

3.1.	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems	NW	Networks — Understand how networks can be used to retrieve and share information, and how they come with associated risks
3.2.	Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem	CM	Creating media — Select and create a range of media including text, images, sounds, and video
3.3.	Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions	DI	Data and information — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios

National Curriculum Statement

Teaching taxonomy

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3.4.	Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]	DD	Design and development — Understand the activities involved in planning, creating, and evaluating computing artefacts
3.5.	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems	CS	Computing systems — Understand what a computer is, and how its constituent parts function together as a whole
3.6.	Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits	IT	Impact of technology — Understand how individuals, systems, and society as a whole interact with computer systems
3.7.	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users	AL	Algorithms — Be able to comprehend, design, create, and evaluate algorithms
3.8.	Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	PG	Programming — Create software to allow computers to solve problems
3.9.	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns.	ET	Effective use of tools — Use software tools to support computing work
		SS	Safety and security — Understand risks when using technology, and how to protect individuals and systems