



Progression map

Computing

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Units / Topics Studied	Technology Around Us; Digital Painting; Moving a Robot; Grouping Data; Digital Writing; Programming Animations	IT Around Us; Digital Photography; Robot Algorithms; Pictograms; Digital Music; Programming Quizzes	Connecting Computers; Stop-Frame Animation; Sequencing Sounds; Branching Databases; Desktop Publishing; Events and Actions in Programs	The Internet; Audio Production; Repetition in Shapes; Data Logging; Photo Editing; Repetition in Games	Systems and Searching; Video Production; Selection in Physical Computing; Flat-File Databases; Vector Graphics; Selection in Quizzes	Communication and Collaboration; Web Page Creation; Variables in Games; Spreadsheets; 3D Modelling; Sensing Movement
Substantive Knowledge	Know that technology exists in school and beyond. Know that digital tools can create images and writing. Know that instructions control devices. Know that data can be grouped.	Know how IT is used in everyday life. Know that algorithms are precise instructions. Know that photographs, music and pictograms are forms of digital media and information.	Know that computers connect through networks. Know that animation, publishing and sound can be created digitally. Know that databases store information. Know that programs	Know that the Internet connects networks globally. Know that audio and images can be edited digitally. Know that repetition improves efficiency in programming. Know that data	Know how search engines work. Know that databases organise large amounts of information. Know that physical computing uses inputs and outputs. Know that vector	Know how data is communicated across networks. Know how websites are structured. Know that variables store data in programs. Know that spreadsheets analyse information. Know that



			follow sequences and events.	can be collected automatically.	graphics differ from bitmap graphics.	sensors collect and respond to data.
Procedural Knowledge	Use devices safely. Create simple digital content. Follow and create simple algorithms. Group and organise data.	Create and debug simple programs. Capture and manipulate digital media. Organise and interpret data.	Design, create and debug programs. Use networks and databases. Create digital media for a purpose.	Apply repetition in programs. Collect and analyse data. Edit and improve digital content. Explain how networks function.	Use selection within programs. Search effectively. Analyse databases. Design purposeful digital content. Evaluate digital solutions.	Independently design, program, evaluate and refine digital products. Use data and computational thinking to solve problems.
Computer Systems and Networks	Identify technology around us and its purpose.	Recognise how IT supports everyday life and make responsible choices when using technology.	Understand how computers connect and communicate within networks.	Understand how the Internet works and how information travels across networks.	Understand systems, searching and how search engines locate information.	Understand communication, collaboration and data sharing across networks and online platforms.
Programming	Create and follow simple algorithms. Program floor robots. Create simple animations.	Develop and debug robot algorithms. Create programmed quizzes.	Sequence sounds and create programs using events and actions.	Use repetition within shapes and games. Debug increasingly complex programs.	Use selection within physical computing and quizzes. Understand inputs and outputs.	Use variables in games and sensing technology. Create increasingly sophisticated programs using selection, variables and sensors.



Creating Media	Create digital paintings and digital writing.	Create digital photographs and digital music.	Create stop-frame animation and desktop publishing products.	Produce audio recordings and edit digital photographs.	Create videos and vector graphics for a purpose.	Create web pages and 3D models for specific audiences and outcomes.
Data and Information	Group data using simple criteria.	Use pictograms to represent and interpret information.	Use branching databases to organise and retrieve information.	Use data loggers to collect and analyse information.	Use flat-file databases to search, sort and interpret information.	Use spreadsheets to organise, analyse and model data.
Computational Thinking	Understand that algorithms are precise instructions.	Identify errors and debug simple algorithms.	Use logical reasoning to predict program outcomes.	Recognise patterns and use repetition effectively.	Apply decomposition, selection and logical reasoning to solve problems.	Design efficient solutions using abstraction, variables, selection and computational thinking.
Digital Literacy and Online Safety	Use technology safely and respectfully. Keep personal information private.	Make responsible choices when using technology and recognise how IT helps society.	Understand responsible use of networks, media and digital content.	Recognise risks online and understand safe communication and collaboration.	Evaluate information found online and understand digital footprints.	Understand online communication, collaboration, privacy, security and responsible digital citizenship.
Debugging and Evaluation	Identify and correct simple mistakes in instructions.	Find and fix errors in simple programs.	Test, debug and improve programs.	Systematically debug programs using logical reasoning.	Evaluate digital products and refine solutions.	Test, refine and evaluate digital systems, programs and products against success criteria.



Vocabulary Progression	technology, algorithm, program, data, paint, keyboard, robot	IT, photograph, music, pictogram, debug, sequence	network, animation, database, event, action, publish	Internet, repetition, data logger, audio, edit, loop	search engine, database, selection, vector, input, output	variable, spreadsheet, sensor, collaboration, communication, modelling
Local / Real-World Computing Links	School technology, interactive whiteboards, laptops and tablets.	IT used in local shops, libraries and services in Gravesend.	Networks used in school and local organisations.	Internet use, communication and digital media in everyday life.	Search engines, databases and digital content creation used in businesses and media.	Websites, spreadsheets, communication systems and sensing technology used in workplaces and wider society.
Expected End Point	Use technology purposefully to create, organise and retrieve digital content. Understand simple algorithms.	Create, debug and evaluate simple programs. Use technology responsibly and interpret data.	Design, create and debug programs whilst understanding networks, databases and digital media.	Apply computational thinking, repetition and data analysis to solve problems and create digital content.	Select appropriate digital tools, create increasingly complex programs and evaluate digital systems.	Think and work as a computer scientist: design, program, analyse, evaluate and refine digital solutions using computational thinking, data and technology safely and effectively.