Draft Digital Technologies Foundation to Year 10 scope and sequence

Strand		Years F–2	Years 3–4	Years 5–6	Years 7–8	Years 9–10
Digital Technologies knowledge and understanding	*Representation of data*	2.1 Recognise and play with patterns in data and represent data as pictures, symbols and diagrams	4.1 Recognise a variety of different types of data and explore different representations for the same data	6.1 Explain how digital systems represent whole numbers as a basis for representing all types of data	8.1 Explain how raw text, image and audio data are represented in binary	10.1 Explain how text, audio, image and video data are stored in binary with compression
	Digital systems			6.2 Describe the internal and external components of common digital systems, their functions and interactions, and identify different connections for digital networks	8.2 Explain how data are transmitted and secured in wired, wireless and mobile networks, and understand how the specifications of hardware components impact on applications	10.2 Explain the role of software and hardware components for managing and controlling access, data and communication in networked digital systems
	Interactions and impact	2.2 Describe how people use different information systems safely to meet personal and family communication and recreation needs	4.2 Investigate how well information systems meet home, classroom and community needs and envisage new applications for existing information systems	6.3 Examine the opportunities and consequences including sustainability of using information systems to meet community and national needs and suggest new applications of these systems	8.3 Evaluate the extent to which information systems meet personal, local, regional and global information and communication needs, and anticipate future risks and benefits for economic, environmental and social sustainability	10.3 Critique information systems and policies, and anticipate future risks and opportunities for transforming lives and societies
Digital Technologies processes and production skills	*Managing and analysing data*	2.3 Collect, use and play with personal, family and classroom data (including numerical, categorical, text, image, audio and video data) and understand why it was collected and use digital systems to present the data	4.3 Collect, access and present different types of family, classroom and community data using simple spreadsheets, databases and other software to create information and solve problems	6.4 Acquire, store and validate different types of data, and interpret and visualise data in context to create information	8.4 Collect and acquire data from a range of sources and evaluate its authenticity, accuracy and timeliness	10.4 Develop systematic techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources considering privacy and security requirements
					8.5 Analyse and visualise data (including numerical, categorical, audiovisual and text data) using appropriate software	10.5 Use appropriate software to analyse and visualise data (including numerical, categorical, text, audiovisual and relational data) to create information and address complex problems
					8.6 Model processes and objects using structured data	10.6 Model processes, objects and their relationships using structured data
	Using digital systems	2.4 Identify, explore, and use digital systems (hardware and software components) for personal and classroom needs	4.4 Use a range of digital systems and peripherals for diverse purposes, and transmit different types of data			
	Specification, algorithms and implementation	2.5 Follow, describe, represent and play with a sequence of steps and decisions needed to solve simple problems	4.5 Define simple problems, and follow and describe the algorithms (sequence of steps and decisions) needed to solve them	6.5 Define problems in terms of data and functional requirements, and describe common characteristics and elements of similar problems	8.7 Define real-world problems and decompose them taking into account usability and technical, economic, environmental and social constraints	10.7 Precisely define and decompose real-world problems, taking into account functional and non-functional requirements and including interviewing stakeholders to elicit needs and assumptions
			4.6 Design and implement simple visual programs with user input and branching	6.6 Follow, modify and describe simple algorithms involving sequence of steps, decisions, and repetitions that are represented diagrammatically and in plain English	8.8 Trace algorithms to predict output for a given input and to identify errors, and describe algorithms diagrammatically and in plain English	10.8 Trace complex algorithms to predict output for a given input, develop test cases to validate algorithms against their specifications, and describe algorithms diagrammatically and in plain English
				6.7 Design and implement digital solutions using visual programs with user input, branching and iteration	8.9 Develop and modify programs with user interfaces involving branching, repetition or iteration and subprograms in a general-purpose programming language	10.9 Collaboratively develop modular digital solutions, applying appropriate algorithms and data structures using visual, object-oriented and/or scripting tools and environments
					8.10 Manage the sequence of tasks, the types of processes and the resources needed to develop software that meets user requirements	10.10 Use agile development techniques to iteratively and collaboratively develop (design, implement and test) software that meets user requirements
	Creating and interacting online	2.6 Work with others to organise and create ideas and information in the form of text, images and audio using information systems, and share these with known people in safe online environments	4.7 Manage the creation, sharing and exchange of information with known audiences and apply agreed social protocols to protect people when communicating online	6.8 Use a range of communication tools and agreed social protocols when collaborating on projects and creating, communicating and sharing ideas and information online	8.11 Select and apply generally accepted social and technical protocols when creating and sharing information online, and collaborating with local, regional and global audiences, taking into account social contexts	10.11 Manage online projects taking into account social contexts and legal responsibilities, and evaluate their success in creating enterprising and social opportunities