Digital Technologies – 7 and 8 – Overview

Strand			Knowledge and understanding				Processes and production skills													
							Creating digital solutions by:													
			Digital systems		Representation of data		Collecting, managing and analysing data		Investigating and defining				Generating and designing				Producing and implementing		Evaluating		Collaborating and managing	
Content Description			Investigate how data is transmitted and secured in wired, wireless and mobile networks, and how the specifications affect performance (ACTDIK023)		Investigate how digital systems represent text, image and audio data in binary (ACTDIK024)		Acquire data from a range of sources and evaluate authenticity, accuracy and timeliness (ACTDIP025)		Analyse and visualise data using a range of software to create information, and use structured data to model objects or events (ACTDIP026)		Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints (ACTDIP027)		Design the user experience of a digital system, generating, evaluating and communicating alternative designs (ACTDIP028)		Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)		Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language (ACTDIP030)		Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability (ACTDIP031)		Plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account (ACTDIP032)	
Sequence of Lessons / Unit	**Approx. time rq'd**	**Year A or B**	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #	CD	Achievement standard #
Get connected	12	7	☑	1	☐		☐		☐		☐		☐		☐		☐		☐		☐	
Networks and performance	10	8	☑	1, 2	☐		☐		☐		☐		☐		☐		☐		☐		☐	
Data and information	10	7	☐		☐		☑	7	☑	7	☑	4	☐		☐		☑		☑		☐	
Computers and binary	9	8	☐		☑	2	☐		☐		☑	4	☐		☐		☐		☐		☐	
Create an app or a game	16	7	☐		☐		☐		☐		☑	4	☑	5	☑	5	☑	5	☑	6	☐	
Robotics and embedded systems	20	8	☑	1	☐		☐		☐		☑	4	☑	5	☑	5	☑	5	☑	6	☐	
Digital citizen	7	7	☐		☐		☐		☐		☐		☐		☐		☐		☑	6	☑	8
Connected or distracted, informed or misinformed?	6 -8 hrs	8	☐		☐		☑	2	☑	2	☑	4	☑	5	☐		☐		☐		☑	3, 8

Cells highlighted in blue indicate that the unit is relevant to a component of the Year 8 Achievement standard. The number in each blue highlighted cell correlates to the numbered Year 8 Achievement standard in the table below

Years 5 and 6 Achievement Standard	**Years 7 and 8 Achievement Standard**	**Years 9 and 10 Achievement Standard**
By the end of Year 6: • Students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. • They explain how digital systems use whole numbers as a basis for representing a variety of data types. • Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. • They incorporate decision-making, repetition and user interface design into their designs and implement their digital solutions, including a visual program. • They explain how information systems and their solutions meet needs and consider sustainability. • Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.	By the end of Year 8 • Students distinguish between different types of networks and defined purposes. (1) • They explain how text, image and audio data can be represented, secured and presented in digital systems. (2) • Students plan and manage digital projects to create interactive information. (3) • They define and decompose problems in terms of functional requirements and constraints. (4) • Students design user experiences and algorithms incorporating branching and iterations, and test, modify and implement digital solutions. (5) • They evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability. (6) • They analyse and evaluate data from a range of sources to model and create solutions. (7) • They use appropriate protocols when communicating and collaborating online. (8)	By the end of Year 10 • Students explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users. • They explain simple data compression, and why content data are separated from presentation. • Students plan and manage digital projects using an iterative approach. • They define and decompose complex problems in terms of functional and non-functional requirements. • Students design and evaluate user experiences and algorithms. • They design and implement modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities. • They take account of privacy and security requirements when selecting and validating data. Students test and predict results and implement digital solutions. • They evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise. • They share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects.