# Digital Technologies Foundation to Year 10 scope and sequence

| Strand | | Foundation to Year 2 | Years 3 and 4 | Years 5 and 6 | Years 7 and 8 | Years 9 and 10 (Elective subject) |
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| Digital Technologies knowledge and understanding | **Digital systems** | 2.1 Identify and use digital systems (hardware and software components) for a purpose | 4.1 Explore and use a range of digital systems with peripheral devices for different purposes, and transmit different types of data | 6.1 Investigate the main components of common digital systems, their basic functions and interactions and how such digital systems may connect together to form networks to transmit data | 8.1 Investigate how data are transmitted and secured in wired, wireless and mobile networks, and how the specifications of hardware components impact on network activities | 10.1 Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems |
| | **Representation of data** | 2.2 Recognise and explore patterns in data and represent data as pictures, symbols and diagrams | 4.2 Recognise different types of data and explore how the same data can be represented in different ways | 6.2 Investigate how digital systems use whole numbers as a basis for representing all types of data | 8.2 Investigate how digital systems represent text, image and audio data in binary | 10.2 Analyse simple compression of data and how content data are separated from presentation |
| Digital Technologies processes and production skills | **Collecting, managing and analysing data** | 2.3 Collect, explore and sort data, and use digital systems to present the data creatively | 4.3 Collect, access and present different types of data using simple software to create information and solve problems | 6.3 Acquire, store and validate different types of data, and use a range of commonly available software to interpret and visualise data in context to create information | 8.3 Acquire data from a range of digital sources and evaluate its authenticity, accuracy and timeliness | 10.3 Develop techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements |
| | | | | | 8.4 Analyse and visualise data using a range of software to create information; and use structured data to model objects or events | 10.4 Analyse and visualise data to create information and address complex problems; and model processes, entities and their relationships using structured data |
| | **Creating digital solutions by:** | | | | | |
| | **Defining** | 2.4 Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems | 4.4 Define simple problems, and describe and follow a sequence of steps and decisions (algorithms) needed to solve them | 6.4 Define problems in terms of data and functional requirements, and identify features similar to previously solved problems | 8.5 Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints | 10.5 Precisely define and decompose real-world problems, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs |

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| Designing | | | 6.5 Design a user interface for a digital system, generating and considering alternative designs | 8.6 Design the user experience of a digital system, generating, evaluating and communicating alternative designs | 10.6 Design the user experience of a digital system, evaluating alternative designs against criteria including functionality, accessibility, usability, and aesthetics |
| | | | 6.6 Design, modify and follow simple algorithms represented diagrammatically and in English involving sequences of steps, branching, and iteration (repetition) | 8.7 Design algorithms represented diagrammatically and in English; and trace algorithms to predict output for a given input and to identify errors | 10.7 Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases |
| Implementing | | 4.5 Implement digital solutions as simple visual programs with algorithms involving branching (decisions), and user input | 6.7 Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input | 8.8 Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language | 10.8 Implement modular programs, applying selected algorithms and data structures including using an object-oriented programming language |
| Evaluating | 2.5 Explore how people safely use common information systems to meet information, communication and recreation needs | 4.6 Explain how developed solutions and existing information systems meet common personal, school or community needs; and envisage new ways of using them | 6.8 Explain how developed solutions and existing information systems are sustainable and meet local community needs, considering opportunities and consequences for future applications | 8.9 Evaluate how well developed solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability | 10.9 Critically evaluate how well developed solutions and existing information systems and policies, take account of future risks and sustainability and provide opportunities for innovation and enterprise |
| Collaborating and managing | 2.6 Work with others to create and organise ideas and information using information systems, and share these in safe online environments | 4.7 Work with others to plan the creation and communication of ideas and information safely, applying agreed ethical and social protocols | 6.9 Manage the creation and communication of ideas and information including online collaborative projects, applying agreed ethical, social and technical protocols | 8.10 Create and communicate interactive ideas and information collaboratively online, taking into account social contexts | 10.10 Create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities |
| | | | | 8.11 Plan and manage projects, including tasks, time and other resources required, considering safety and sustainability | 10.11 Plan and manage projects using an iterative and collaborative approach, identifying risks and considering safety and sustainability |