# Digital Technologies: Overview – Years 5 and 6

| STRAND | | | Knowledge and understanding | | | | Processes and production skills *Creating Digital Solutions by:* | | | | | | | | | | | | | |
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| | | | 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** | | | Examine the main components of common digital systems and how they may connect together to form networks to transmit data (ACTDIK014 ) | | Examine how whole numbers are used to represent all data in digital systems (ACTDIK015 ) | | Acquire, store and validate different types of data, and use a range of software to interpret and visualise data to create information (ACTDIP016) | | Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017 ) | | Design a user interface for a digital system (ACTDIP018) | | Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) (ACTDIP019) | | Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input (ACTDIP020) | | Explain how student solutions and existing information systems are sustainable and meet current and future local community needs (ACTDIP021) | | Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols (ACTDIP022 ) | |
| **Sequence of Lessons / Unit** | Approx. time rq'd | Year | 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 # |
| Data and information | 6 | 5 | ☑ | 1 | ☐ | | ☐ | | ☑ | 3 | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | |
| Connecting digital components | 4 | 6 | ☑ | 1 | ☐ | | ☑ | 3 | ☑ | 3 | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | |
| Binary numbers | 2 | 5 | ☐ | | ☑ | 2 | ☑ | 4 | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | |
| Representing images using binary | 4 | 6 | ☐ | | ☑ | 2 | ☑ | 4 | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | |
| Problem-solving processes | 16 | 5 | ☐ | | ☐ | | ☐ | | ☑ | 3 | ☐ | | ☐ | | ☑ | 4 | ☑ | 5 | ☐ | |
| Creating a digital game | 20 | 6 | ☐ | | ☐ | | ☐ | | ☑ | 3 | ☑ | 4 | ☑ | 4 | ☑ | 4 | ☐ | | ☐ | |
| Digital citizenship | 2 | 5 | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☐ | | ☑ | 6 |
| Collaborative project | 6 | 6 | ☑ | 1 | ☐ | | ☐ | | ☑ | 3 | ☐ | | ☐ | | ☐ | | ☑ | 5 | ☑ | 6 |

| Levels 3 and 4 Achievement Standard | Levels 5 and 6 Achievement Standard<br>The numbering of the Achievement Standards below is reflected in the grid above to show coverage across the 8 units. | Levels 7 and 8 Achievement Standard |
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| By the end of Year 4<br>• Students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes.<br>• They explain how the same data sets can be represented in different ways.<br>• Students define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input.<br>• They explain how the solutions meet their purposes.<br>• They collect and manipulate different data when creating information and digital solutions.<br>• They safely use and manage information systems for identified needs using agreed protocols and describe how information systems are used. | By the end of Year 6:<br>• Students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. (1)<br>• They explain how digital systems use whole numbers as a basis for representing a variety of data types. (2)<br>• Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. (3)<br>• They incorporate decision-making, repetition and user interface design into their designs and implement their digital solutions, including a visual program. (4)<br>• They explain how information systems and their solutions meet needs and consider sustainability. (5)<br>• Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols. (6) | By the end of Year 8<br>• students distinguish between different types of networks and defined purposes.<br>• They explain how text, image and audio data can be represented, secured and presented in digital systems.<br>• Students plan and manage digital projects to create interactive information.<br>• They define and decompose problems in terms of functional requirements and constraints.<br>• Students design user experiences and algorithms incorporating branching and iterations, and test, modify and implement digital solutions.<br>• They evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability.<br>• They analyse and evaluate data from a range of sources to model and create solutions.<br>• They use appropriate protocols when communicating and collaborating online. |

**Suggested weighting of topics**

**Year 5**

| Binary numbers | Digital citizenship | Data and information | Problem-solving processes |
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**Year 6**

| Connecting digital components | Representing images using binary | Collaborative project | Creating a digital game |
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