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|  | **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** | | 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 |

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

**Suggested weighting of topics**

**Year 5**

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

**Year 6**

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