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|  | **Strand** | **Digital Systems** | | **Data and Information** | | | | | | | | **Creating Digital Solutions** | | | | | | | | | |
|  | **Content Description** | Investigate how data are transmitted and secured in wired, wireless and mobile networks  [(VCDTDS035)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS035) | | Investigate how digital systems represent text, image and sound data in binary  [(VCDTDI036)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI036) | | Acquire data from a range of sources and evaluate their authenticity, accuracy and timeliness  [(VCDTDI037)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI037) | | Analyse and visualise data using a range of software to create information, and use structured data to model objects or events  [(VCDTDI038)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI038) | | Manage, create and communicate interactive ideas, information and projects collaboratively online, taking safety and social contexts into account  [(VCDTDI039)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI039) | | Define and decompose real-world problems taking into account functional requirements and sustainability (economic, environmental, social), technical and usability constraints  [(VCDTCD040)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD040) | | Design the user experience of a digital system, generating,  evaluating and communicating  alternative designs  [(VCDTCD041)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD041) | | Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors  [(VCDTCD042)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD042) | | Develop and modify programs with user interfaces involving branching, iteration and functions using a general-purpose programming language  [(VCDTCD043)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD043) | | Evaluate how well student-developed solutions and existing information systems meet needs, are innovative and take account of future risks and sustainability  [(VCDTCD044)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD044) | |
| **Sequence of Lessons / Unit** | **Semester/ 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 # | CD | Achievement standard # |
| Computer networks | Semester 1 / Year 7 |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data storage | Semester 1 / Year 7 |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data visualisations | Semester 1 / Year 7 |  |  |  |  |  | 3 |  | 3 |  | 4 |  |  |  |  |  |  |  |  |  |  |
| Requirements and user experiences | Semester 2 / Year 7 |  |  |  |  |  |  |  |  |  |  |  | 5 |  | 6 |  |  |  |  |  |  |
| Algorithms | Semester 2 / Year 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |  |  |
| Programming | Semester 2 / Year 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |
| Product evaluation | Semester 2 / Year 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7 |

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| **Levels 5 and 6 Achievement Standard** | **Levels 7 and 8 Achievement Standard**  Separated by line. Number in brackets, e.g. (3), can be used as an identifier in various parts of the template. | **Levels 9 and 10 Achievement Standard** |
| By the end of Level 6   * Students explain the functions of digital system components and how digital systems are connected to form networks that transmit data. * Students explain how digital systems use whole numbers as a basis for representing a variety of data types. * They manage the creation and communication of ideas, information and digital projects collaboratively using validated data and agreed protocols. * 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 develop their digital solutions, including a visual program. * Students explain how information systems and their developed solutions meet current and future needs taking sustainability into account. | By the end of Level 8   * Students distinguish between different types of networks and their suitability in meeting defined purposes. (1) * Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems. (2) * They analyse and evaluate data from a range of sources to model solutions and create information. (3) * They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online. (4) * Students define and decompose problems in terms of functional requirements and constraints. (5) * They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions. (6) * Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability. (7) | By the end of Level 10   * Students explain the control and management of networked digital systems and the data security implications of the interaction between hardware, software and users. * Students explain simple data compression, and why content data are separated from presentation. * They take account of privacy and security requirements when selecting and validating data and use digital systems to analyse, visualise and model salient aspects of data. * Students share and collaborate online, establishing protocols for the legal and safe use, transmission and maintenance of data and projects. * Students define and decompose complex problems in terms of functional and non-functional requirements. * They design and evaluate user experiences and algorithms, and develop and test modular programs, including an object-oriented program. * Students evaluate their solutions and information systems in terms of risk, sustainability and potential for innovation. |

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| **Level 7 Assessments** | | |  | **Level 8 Assessments** | | |
| **Unit (Title)** | **Assessment** | **Achievement Standard/s** |  | **Unit (Title)** | **Assessment** | **Achievement Standard/s** |
| Computer networks | Report: Comparison of network types and purposes. | 1 |  | Requirements and user experiences | Folio: Requirements and user experiences. | 5, 6 |
| Data storage | Exercises and a test. | 2 |  | Algorithms | Folio: Flowcharts and pseudocode. | 6 |
| Data visualisations | Research task and report. | 3, 4 |  | Programming | Folio: Submission of programs and evidence of working robot tasks. | 6 |
|  |  |  |  | Product evaluation | Web report: Evaluation of programming solution and working robot task. | 7 |

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|  | **Strand** | **Digital Systems** | | **Data and Information** | | | | | | | | **Creating Digital Solutions** | | | | | | | | | |
|  | **Content Description** | Investigate how data are transmitted and secured in wired, wireless and mobile networks  [(VCDTDS035)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS035) | | Investigate how digital systems represent text, image and sound data in binary  [(VCDTDI036)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI036) | | Acquire data from a range of sources and evaluate their authenticity, accuracy and timeliness  [(VCDTDI037)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI037) | | Analyse and visualise data using a range of software to create information, and use structured data to model objects or events  [(VCDTDI038)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI038) | | Manage, create and communicate interactive ideas, information and projects collaboratively online, taking safety and social contexts into account  [(VCDTDI039)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI039) | | Define and decompose real-world problems taking into account functional requirements and sustainability (economic, environmental, social), technical and usability constraints  [(VCDTCD040)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD040) | | Design the user experience of a digital system, generating,  evaluating and communicating  alternative designs  [(VCDTCD041)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD041) | | Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors  [(VCDTCD042)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD042) | | Develop and modify programs with user interfaces involving branching, iteration and functions using a general-purpose programming language  [(VCDTCD043)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD043) | | Evaluate how well student-developed solutions and existing information systems meet needs, are innovative and take account of future risks and sustainability  [(VCDTCD044)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD044) | |
| **Sequence of Lessons / Unit** | **Semester/ 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 # | CD | Achievement standard # |
| Networking | Semester 1 / Year 8 |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Binary and Computers | Semester 1 / Year 8 |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Research – Sourcing | Semester 1 / Year 8 |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Research – Infographic | Semester 1 / Year 8 |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Research – Website | Semester 1 / Year 8 |  |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |
| Project – Decompose | Semester 2 / Year 8 |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |
| Project – Creating designs | Semester 2 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |
| Project – Algorithms | Semester 2 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |  |  |
| Project – Solutions | Semester 2 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |
| Project – Evaluation | Semester 2 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7 |

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| **Levels 5 and 6 Achievement Standard** | **Levels 7 and 8 Achievement Standard**  Separated by line. Number in brackets, e.g. (3), can be used as an identifier in various parts of the template. | **Levels 9 and 10 Achievement Standard** |
| By the end of Level 6   * Students explain the functions of digital system components and how digital systems are connected to form networks that transmit data. * Students explain how digital systems use whole numbers as a basis for representing a variety of data types. * They manage the creation and communication of ideas, information and digital projects collaboratively using validated data and agreed protocols. * 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 develop their digital solutions, including a visual program. * Students explain how information systems and their developed solutions meet current and future needs taking sustainability into account. | By the end of Level 8   * Students distinguish between different types of networks and their suitability in meeting defined purposes. (1) * Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems. (2) * They analyse and evaluate data from a range of sources to model solutions and create information. (3) * They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online. (4) * Students define and decompose problems in terms of functional requirements and constraints. (5) * They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions. (6) * Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability. (7) | By the end of Level 10   * Students explain the control and management of networked digital systems and the data security implications of the interaction between hardware, software and users. * Students explain simple data compression, and why content data are separated from presentation. * They take account of privacy and security requirements when selecting and validating data and use digital systems to analyse, visualise and model salient aspects of data. * Students share and collaborate online, establishing protocols for the legal and safe use, transmission and maintenance of data and projects. * Students define and decompose complex problems in terms of functional and non-functional requirements. * They design and evaluate user experiences and algorithms, and develop and test modular programs, including an object-oriented program. * Students evaluate their solutions and information systems in terms of risk, sustainability and potential for innovation. |

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| **Level 8 Assessments** | | |  | **Level 8 Assessments** | | |
| **Unit (Title)** | **Assessment** | **Achievement Standard/s** |  | **Unit (Title)** | **Assessment** | **Achievement Standard/s** |
| Networking | Report: Response to simple network case study. Students design a simple network, respond to network questions and create a simple network map | 1 |  | Project – Decompose | Report: Decompose a simple problem into functional and non-functional requirements | 5 |
| Binary and Computers | Report: Investigation into how images, text and audio are represented on a computer | 2 |  | Project – Creating designs | Folio: Create two visual designs for a user interface. Select and justify preferred design | 6 |
| Research – Sourcing | Folio: Initial report into an IT issue that contains an evaluation of research sources | 3 |  | Project – Algorithms | Folio: Create and test a range of algorithms to solve programming problems | 6 |
| Research – Infographic | Folio: Present findings in the form of infographic | 3 |  | Project – Solutions | Folio: Create and test a range of programming solutions | 6 |
| Research – Website | Folio: Simple collaborative website with agreed protocols to present research | 4 |  | Project – Evaluation | Report: Students evaluate how their solutions met initial requirements | 7 |

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|  | **Strand** | **Digital Systems** | | **Data and Information** | | | | | | | | **Creating Digital Solutions** | | | | | | | | | |
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| **Network Project** | Semester 1 / Year 7 |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Imaging** | Semester 1 / Year 7 |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Issues Project**   1. Research and data collection | Semester 1 / Year 7 |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Issues Project**   1. Developing charts with spreadsheets | Semester 1 / Year 7 |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  |  |
| **Web authoring** | Semester 1 / Year 7 |  |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |
| **Programming Project**   1. Analysis - Requirements | Semester 1 / Year 8 |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |  |
| **Programming Project**   1. Design | Semester 1 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  | 6 |  |  |  |  |
| **Programming Project**   1. Development | Semester 1 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 6 |  |  |
| **Programming Project**   1. Evaluation | Semester 1 / Year 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 7 |

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| **Level 7 Assessments** | | |  | **Level 8 Assessments** | | |
| **Unit (Title)** | **Assessment** | **Achievement Standard/s** |  | **Unit (Title)** | **Assessment** | **Achievement Standard/s** |
| **Network Project** | Written report involving an investigation into network types, components and transmission media | 1 |  | **Programming Project**   1. Analysis | Written report   * Discussion of functional requirements and constraints | 5 |
| **Imaging** | Folio of images of different file types and manipulation of colour | 2 |  | **Programming Project**   1. Design | Mock-ups, algorithms and testing table | 6 |
| **Issues Project** | Written report and charts   * Research into an issue using ABS data | 3 |  | **Programming Project**   1. Development | Software solution and testing | 6 |
| **Web Authoring** | Creation of a web site using HTML and CSS | 4 |  | **Programming Project**   1. Evaluation | Written report   * Student evaluation of how solution met functional requirements | 7 |