|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 2 Achievement Standard** |
| **Context: Hardware Components**In this unplugged lesson students create a paper representation of a common digital system, a personal computer. They must ensure that their system has an input, output and a system unit. The teaching and learning plan focuses on the strand of Digital Systems.**Content Description:*** Identify and explore digital systems (hardware and software components) for a purpose [(VCDTDS013)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS013)
 |
|  | **Example of Indicative Progress towards Level 2 Achievement Standard** | **Digital Technologies Level 2 Achievement Standard** |
|  | **In Digital Technologies, indicative progression towards the Level 2 achievement standard may be when students:*** identify digital systems that they use in their daily lives. They identify how the system receives input such as from a keyboard or a mouse, and how it produces output such as displaying pictures on the screen.
 | By the end of Level 2:* Students identify how common digital systems are used to meet specific purposes.
* Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning.
* Students design solutions to simple problems using a sequence of steps and decisions. They create and organise ideas and information using information systems and share these in safe online environments.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 2 Achievement Standard** |
| **Context: Mouse and Cheese**In this unplugged lesson, students participate in role play in which they play the part of a robot that must follow a sequence of steps determined by their peers. They then use a cut and paste paper activity to create one or more sequences of steps that allow a mouse to follow a path to reach a piece of cheese. The teaching and learning plan focuses on the strand of Creating Digital Solutions.**Content Description:*** Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems [(VCDTCD017)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD017)
 |
|  | **Example of Indicative Progress towards Level 2 Achievement Standard** | **Digital Technologies Level 2 Achievement Standard** |
|  | **In Digital Technologies, indicative progression towards the Level 2 achievement standard may be when students:*** follow two to three given sequences of steps and determine which one is the most efficient in order to solve the activity.
 | By the end of Level 2:* Students identify how common digital systems are used to meet specific purposes.
* Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning.
* Students design solutions to simple problems using a sequence of steps and decisions. They create and organise ideas and information using information systems and share these in safe online environments.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 2 Achievement Standard**  |
| **Context: Where To?** Students learn to read and write sequences of steps called algorithms, in order to program a robot. They use a set of instructions to solve simple problems using the robots, and explore the benefits and limitations of the robot. Students use digital systems to capture their learning in images, audio and video, and present their learning using these digital systems. The teaching and learning plan focuses on the strands of Digital Systems and Creating Digital Solutions.**Content Descriptions:*** Identify and explore digital systems (hardware and software components) for a purpose [(VCDTDS013)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS013)
* Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems [(VCDTCD017)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD017)
 |
|  | **Examples of Indicative Progress toward Level 2 Achievement Standard** | **Digital Technologies Level 2 Achievement Standard** |
|  | **In Digital Technologies, indicative progression towards the Level 2 achievement standard may be when students:*** record images and video using a digital camera or tablet and discuss why they selected images or video.
* use symbols to represent patterns in a sequence of steps (algorithm) e.g. ↑ 4 to represent four movements forward.
* follow a given sequence of steps (including directional change) to move within a physical space, in order to reach a set destination.
 | By the end of Level 2:* Students identify how common digital systems are used to meet specific purposes.
* Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning.
* Students design solutions to simple problems using a sequence of steps and decisions. They create and organise ideas and information using information systems and share these in safe online environments.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 4 Achievement Standard** |
| **Context: Choose your own adventure**Students will explore the features and characteristics of digital adventure texts. Building on this knowledge, students will apply design skills in writing an algorithm using branching to plan the key decisions and steps in their own adventure text. Students will create this digital adventure text and have it evaluated by a peer. The teaching and learning plan focuses on the strand of Creating Digital Solutions.**Content Descriptions:*** Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them [(VCDTCD023)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD023)
* Develop simple solutions as visual programs [(VCDTCD024)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD024)
* Explain how student-developed solutions and existing information systems meet common personal, school or community needs [(VCDTCD025)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD025)
 |
| **Digital Technologies Level 2 Achievement Standard** | **Example of Indicative Progress towards Level 4 Achievement Standard** | **Digital Technologies Level 4 Achievement Standard** |
| By the end of Level 2:* Students identify how common digital systems are used to meet specific purposes.
* Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning.
* Students design solutions to simple problems using a sequence of steps and decisions.
* They create and organise ideas and information using information systems and share these in safe online environments.
 | **In Digital Technologies, indicative progression towards the Level 4 achievement standard may be when students:*** define simple problems and design linear digital solutions as a visual program, where the adventure story progresses regardless of user input.
* identify features or elements of their solution that contribute to meeting aspects of their purposes.
 | By the end of Level 4, students describe how a range of digital systems and their peripheral devices can be used for different purposes.Students explain how the same data sets can be represented in different ways. They collect and manipulate different data when creating information and digital solutions. They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input. They explain how their developed solutions and existing information systems meet their purposes. |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 4 Achievement Standard** |
| **Context: Symmetry**In this integrated unit (Digital Technologies and Mathematics), students investigate the concept of symmetry. They explore symmetry through simple designs, initially on paper and then using digital systems. Students extend their knowledge by identifying symmetry in their local environments (e.g. classroom, playground and park) and by recording examples by taking photographs (images). Students manipulate these images using drawing tools to demonstrate and explain the lines of symmetry that are present in each image, and record audio to share their understanding. Students’ digital products will be shared with their peers. The teaching and learning plan focuses on the strands of Digital Systems and Data and Information.**Content Descriptions:*** Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data [(VCDTDS019)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS019)
* Recognise different types of data and explore how the same data can be represented in different ways [(VCDTDI020)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI020)
* Collect, access and present different types of data using simple software to create information and solve problems [(VCDTDI021)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI021)
 |
| **Digital Technologies Level 2 Achievement Standard** | **Example of Indicative Progress towards Level 4 Achievement Standard** | **Digital Technologies Level 4 Achievement Standard** |
| By the end of Level 2:* students identify how common digital systems are used to meet specific purposes.
* Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning.
* Students design solutions to simple problems using a sequence of steps and decisions.
* They create and organise ideas and information using information systems and share these in safe online environments.
 | **In Digital Technologies, indicative progression towards the Level 4 achievement standard may be when students:*** identify how a notebook computer or desktop computer can be used with a digital camera to capture images and transfer files.
* represent and classify shapes using digital systems and captured images. They identify lines of symmetry and asymmetrical objects and group the objects according to these categories.
 | By the end of Level 4:* students describe how a range of digital systems and their peripheral devices can be used for different purposes.
* Students explain how the same data sets can be represented in different ways. They collect and manipulate different data when creating information and digital solutions.
* They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.
* Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input.
* They explain how their developed solutions and existing information systems meet their purposes.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 6 Achievement Standard** |
| **Context: Census Unit**In this integrated unit (Digital Technologies and Mathematics), students explore Census data within Australia and their local area. They create graphs of this data using spreadsheet software and create an infographic. Students will create a flowchart to represent the steps involved in making their infographic. They will interpret the data and make predictions about their local area based on this data. The teaching and learning plan focuses on the strands of Data and Information and Creating Digital Solutions.**Content Descriptions:*** Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information [(VCDTDI028)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI028)
* Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration [(VCDTCD032)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD032)
* Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs [(VCDTCD034)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD034)
 |
| **Digital Technologies Level 4 Achievement Standard** | **Example of Indicative Progress towards Level 6 Achievement Standard** | **Digital Technologies Level 6 Achievement Standard** |
| By the end of Level 4:* students describe how a range of digital systems and their peripheral devices can be used for different purposes.
* Students explain how the same data sets can be represented in different ways. They collect and manipulate different data when creating information and digital solutions.
* They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.
* Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input.
* They explain how their developed solutions and existing information systems meet their purposes.
 | **In Digital Technologies, indicative progression towards the Level 6 achievement standard may be when students:*** use the Census information system to acquire data and identify a category to use in order to represent information in an infographic.
* represent an algorithm as a flowchart which describes the steps necessary to create an infographic.
* explain how using the Census information system to collect data can have a positive impact on their community by assisting in the identification of future needs.
 | 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.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 6 Achievement Standard** |
| **Context: How Plants Grow**In this integrated unit (Digital Technologies and Science), students will investigate how plants grow, what conditions are necessary and what elements are required. They will make observations, record data and evaluate results from an experiment to discover how alfalfa seeds grow and what environmental effects have on their growth.Observations and data collection will use Raspberry Pi computers and students will develop/alter code to create time lapse video recordings.Students will enter data over a period of one week and record visual observations daily into a chart which will be graphed and compared. This unit will also ask students to investigate how technology is used in farms today as well as into the future and consider the impact these systems might have on farming. The teaching and learning plan focuses on the strands of Digital Systems and Creating Digital Solutions.**Content Descriptions:*** Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data [(VCDTDS026)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS026)
* Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities [(VCDTCD030)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD030)
* Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration [(VCDTCD032)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD032)
* Explain how student-developed solutions and existing information systems meet current and future community needs [(VCDTCD034)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD034)
 |
| **Digital Technologies Level 4 Achievement Standard** | **Example of Indicative Progress towards Level 6 Achievement Standard** | **Digital Technologies Level 6 Achievement Standard** |
| By the end of Level 4:* Students describe how a range of digital systems and their peripheral devices can be used for different purposes.
* Students explain how the same data sets can be represented in different ways.
* They collect and manipulate different data when creating information and digital solutions.
* They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.
* Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input.
* They explain how their developed solutions and existing information systems meet their purposes.
 | **In Digital Technologies, indicative progression towards the Level 6 achievement standard may be when students:*** identify the different digital systems in use and explain how these differ from a peripheral device.
* list and categorise the data that the system will need to collect.
* are able to step though peer and class developed algorithms that include repetition.
* make connections between their solutions and peer or professional agricultural information systems finding elements in them that meet current and future needs.
 | 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.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 6 Achievement Standard** |
| **Context: Marvellous Machines**In this integrated unit (Digital Technologies, Design Technology and Science) students explore machines and how they work. They look at how digital systems work and connect together and how information systems meet current and future community and sustainability needs. Students will investigate electric circuits and how they work, the generation of electricity and how electricity and electrical appliances have changed the way some people live. The teaching and learning plan focuses on the strands of Digital Systems and Creating Digital Solutions.**Content Descriptions:*** Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data [(VCDTDS026)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDS026)
* Explain how student-developed solutions and existing information systems meet current and future community needs [(VCDTCD034)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD034)
 |
| **Digital Technologies Level 4 Achievement Standard** | **Example of Indicative Progress towards Level 6 Achievement Standard** | **Digital Technologies Level 6 Achievement Standard** |
| By the end of Level 4:* Students describe how a range of digital systems and their peripheral devices can be used for different purposes.
* Students explain how the same data sets can be represented in different ways.
* They collect and manipulate different data when creating information and digital solutions.
* They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.
* Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input.
* They explain how their developed solutions and existing information systems meet their purposes.
 | **In Digital Technologies, indicative progression towards the Level 6 achievement standard may be when students:*** group a list of components/peripherals into categories (e.g. external and internal or input and output or essential and non-essential)
* identify current environmental issues in existing information systems found in the school.
 | 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.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 6 Achievement Standard** |
| **Context: Creating Computer Games with Scratch**In this integrated unit (Digital Technologies and Mathematics), students progress through the processes involved in creating a computer game using the visual programming language Scratch. They explore design features of computer games and consider factors that influence the playability of games, such as level of difficulty, speed and user interactions. Students construct algorithms that identify decisions and processes to be followed in the game, and use Scratch to transform their designs into a functioning game. The teaching and learning plan focuses on the strands of Data and Information and Creating Digital Solutions.**Content Descriptions:*** Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols [(VCDTDI029)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI029)
* Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities [(VCDTCD030)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD030)
* Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching and iteration [(VCDTCD032)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD032)
* Develop digital solutions as simple visual programs [(VCDTCD033)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTCD033)
 |
| **Digital Technologies Level 4 Achievement Standard** | **Example of Indicative Progress towards Level 6 Achievement Standard** | **Digital Technologies Level 6 Achievement Standard** |
| By the end of Level 4:* students describe how a range of digital systems and their peripheral devices can be used for different purposes.
* Students explain how the same data sets can be represented in different ways.
* They collect and manipulate different data when creating information and digital solutions.
* They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols.
* Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input.
* They explain how their developed solutions and existing information systems meet their purposes.
 | **In Digital Technologies, indicative progression towards the Level 6 achievement standard may be when students:*** plan and collaborate on projects, supporting face to face communication with an online tool using agreed protocols.
* define simple problems in relation to what the finished program is expected to do (functional requirements), develop algorithms and a digital solution using a visual programming language that involves decision-making and user input.
 | 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.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 8 Achievement Standard** |
| **Context: Big Data**Students explore large data sets and develop an understanding of their structure. They will also explore how data can be sorted. Students use this understanding to develop their own datasets based on a personal interest. The teaching and learning plan focuses on the strand of Data and Information.**Context Description:*** 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)
 |
| **Digital Technologies Level 6 Achievement Standard** | **Example of Indicative Progress towards Level 8 Achievement Standard** | **Digital Technologies Level 8 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.
 | **In Digital Technologies, indicative progression towards the Level 8 achievement standard may be when students:*** identify different types of data found in a variety of data sets and categorise them as strings, dates, numbers, etc.
* discover that different types of data sort in different ways.
 | By the end of Level 8:* Students distinguish between different types of networks and their suitability in meeting defined purposes.
* Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems.
* They analyse and evaluate data from a range of sources to model solutions and create information.
* They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online.
* Students define and decompose problems in terms of functional requirements and constraints.
* They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions.
* Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 8 Achievement Standard** |
| **Context: Binary**Studentsexplore the links between binary and text, image and sounds. They develop an understanding of how file size and file type can impact the time it takes websites to load. The teaching and learning plan focuses on the strand of Data and Information.**Content Description:*** Investigate how digital systems represent text, image and sound data in binary [(VCDTDI036)](http://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCDTDI036)
 |
| **Digital Technologies Level 6 Achievement Standard** | **Example of Indicative Progress towards Level 8 Achievement Standard** | **Digital Technologies Level 8 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.
 | **In Digital Technologies, indicative progression towards the Level 8 achievement standard may be when students:*** recognise the different types of data used by digital systems. They make connections between the size, quality and type of the file and discuss how these influence the selection of a particular file (size, type) when creating websites.
 | By the end of Level 8:* Students distinguish between different types of networks and their suitability in meeting defined purposes.
* Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems.
* They analyse and evaluate data from a range of sources to model solutions and create information.
* They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online.
* Students define and decompose problems in terms of functional requirements and constraints.
* They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions.
* Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 8 Achievement Standard** |
| **Context: Cloud Computing**Students develop an understanding of how the internet uses various protocols to enable data such as images on a website to be shared and transmitted around the world. The teaching and learning plan focuses on the strands of Digital Systems and Data and Information.**Content Descriptions:** * 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)
 |
| **Digital Technologies Level 6 Achievement Standard** | **Example of Indicative Progress towards Level 8 Achievement Standard** | **Digital Technologies Level 8 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.
 | **In Digital Technologies, indicative progression towards the Level 8 achievement standard may be when students:*** can name three common types of networks and describe a situation where the different aspects of these networks would be beneficial.
* can explain that encryption keeps data safe by only allowing ‘trusted’ systems to read it.
 | By the end of Level 8:* Students distinguish between different types of networks and their suitability in meeting defined purposes.
* Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems.
* They analyse and evaluate data from a range of sources to model solutions and create information.
* They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online.
* Students define and decompose problems in terms of functional requirements and constraints.
* They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions.
* Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability.
 |

|  |
| --- |
| **CURRICULUM AREA: Digital Technologies *toward* Level 8 Achievement Standard** |
| **Context: Game Development**Students will be introduced to the fundamentals of game making and software development through designing algorithms and user interfaces. They will transition from being content consumers to content creators. Students will develop higher order thinking skills including computational, design and systems thinking skills. The teaching and learning plan focuses on the strand of Creating Digital Solutions.**Content Descriptions:*** 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)
 |
| **Digital Technologies Level 6 Achievement Standard** | **Example of Indicative Progress towards Level 8 Achievement Standard** | **Digital Technologies Level 8 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.
 | **In Digital Technologies, indicative progression towards the Level 8 achievement standard may be when students:*** design games by designing algorithms and taking into account the user experiences.
* test existing or peer developed games and modify elements from these into their own digital solutions.
 | By the end of Level 8:* Students distinguish between different types of networks and their suitability in meeting defined purposes.
* Students explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems.
* They analyse and evaluate data from a range of sources to model solutions and create information.
* They manage the collaborative creation of interactive ideas, information and projects and use appropriate codes of conduct when communicating online.
* Students define and decompose problems in terms of functional requirements and constraints.
* They design user experiences and algorithms incorporating branching and iterations, and develop, test, and modify digital solutions.
* Students evaluate information systems and their solutions in terms of meeting needs, innovation and sustainability.
 |