The Victorian Curriculum
Digital Technologies

Curriculum Planning for Digital Technologies (F-10)
Webinar – 14 September 2017

Steve Allen – VCAA Specialist Teacher (Glenroy West PS)
Daryl Croke – VCAA Specialist Teacher (Mount Ridley P-12 College)
Phil Feain – VCAA Curriculum Manager, Digital Technologies

What you need to follow

Digital Technologies Curriculum

http://victoriancurriculum.vcaa.vic.edu.au/technologies/digital-technologies/introduction/rationale-and-aims

Rationale and Aims
Structure
Learning in Digital Technologies
Scope and Sequence
Resources
Glossary

Rationale and Aims

Print this page

Rationale

The Digital Technologies curriculum enables students to become confident and creative developers of digital solutions through the application of information systems and specific ways of thinking about problem solving.

Students acquire a deep knowledge and understanding of digital systems, data and information and the processes associated with creating digital solutions so they can take up an active role in meeting current and future needs.

The curriculum has been designed to provide practical opportunities for students to explore the capacity of information systems to systematically and innovatively transform data into digital solutions through the application of computational, design and systems thinking.

Scope and Sequence F-10

http://victoriancurriculum.vcaa.vic.edu.au/technologies/digital-technologies/introduction/scope-and-sequence

Victorian Curriculum Foundation–10

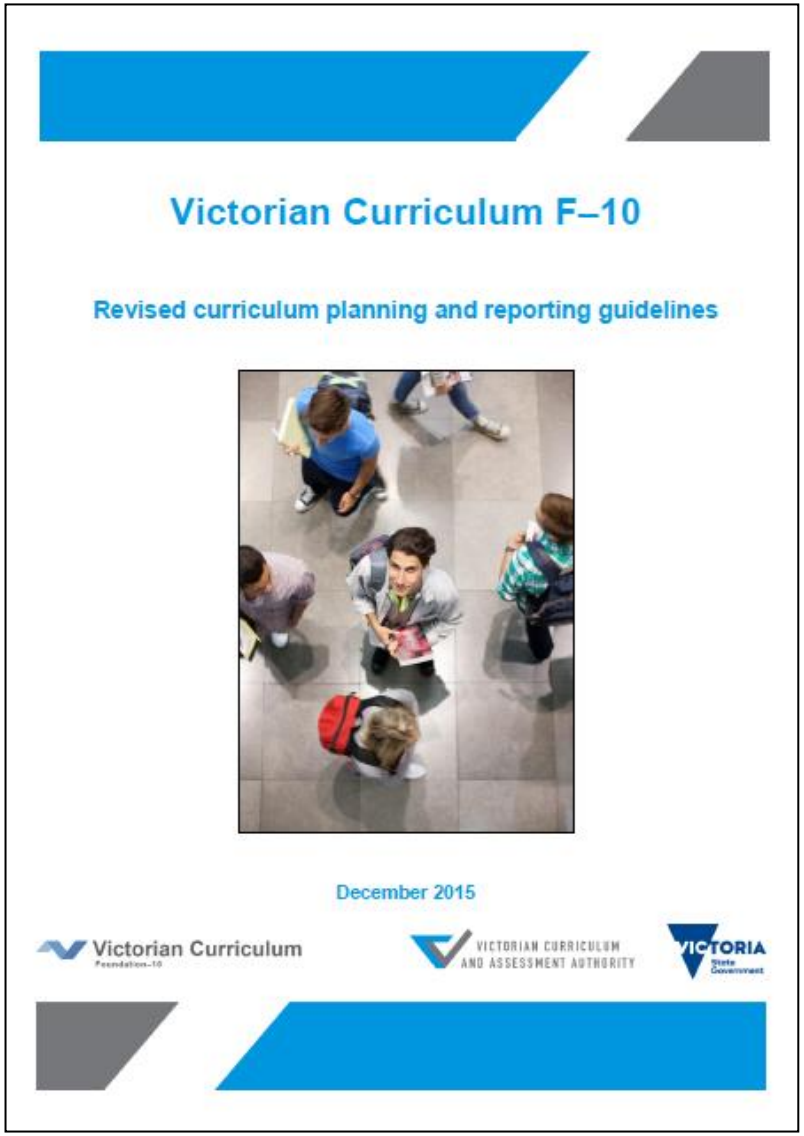
Digital Technologies: Foundation – Level 10

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

Foundation – Level 2	Levels 3 and 4	Levels 5 and 6	Levels 7 and 8	Levels 9 and 10
Digital Systems				
Identify and explore digital systems (hardware and software components) for a purpose	Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data	Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data	Investigate how data are transmitted and secured in wired, wireless and mobile networks	Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems
Data and Information				
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams	Recognise different types of data and explore how the same data can be represented in different ways	Examine how whole numbers are used as the basis for representing all types of data in digital systems	Investigate how digital systems represent text, image and sound data in binary	Analyse simple compression of data and how content data are separated from presentation
Collect, explore and sort data, and use digital systems to present the data creatively	Collect, access and present different types of data using simple software to create information and solve problems	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information	Acquire data from a range of sources and evaluate their authenticity, accuracy and timeliness	Develop techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements
Independently and with others create and organise ideas and information using information systems, and share these with known people in safe online environments	Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols	Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	Analyse and visualise data using a range of software to create information, and use structured data to model objects or events	Analyse and visualise data to create information and address complex problems, and model processes, entities and their relationships using structured data
			Manage, create and communicate interactive ideas, information and projects collaboratively online, taking safety and social contexts into account	Manage and collaboratively create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities
Creating Digital Solutions				
Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems	Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them	Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities	Define and decompose real-world problems taking into account functional requirements and sustainability (economic, environmental, social), technical and usability constraints	Define and decompose real-world problems precisely, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs
		Design a user interface for a digital system, generating and considering alternative design ideas	Design the user experience of a digital system, generating, evaluating and communicating alternative designs	Design the user experience of a digital system, evaluating alternative designs against criteria including functionality, accessibility, usability and aesthetics
		Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration	Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors	Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases
	Develop simple solutions as visual programs	Develop digital solutions as simple visual programs	Develop and modify programs with user interfaces involving branching, iteration and functions using a general-purpose programming language	Develop modular programs, applying selected algorithms and data structures including using an object-oriented programming language
Explore how people safely use common information systems to meet information, communication and recreation needs	Explain how student-developed solutions and existing information systems meet common personal, school or community needs	Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs	Evaluate how well student-developed solutions and existing information systems meet needs, are innovative and take account of future risks and sustainability	Evaluate critically how well student-developed solutions and existing information systems and policies take account of future risks and sustainability and provide opportunities for innovation
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.	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.	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. 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.	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.

Planning and reporting

http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/curriculumplanning.aspx



Resource samples

Curriculum Mapping

Victorian Curriculum
Foundation–10

Curriculum Mapping Template: Digital Technologies – 5 and 6

Instruction: List the title of the unit of work in the first column and then tick the check box of the content description/s addressed by it, which can be done electronically. Once completed, fill out the 'Assessments' table.
For detailed notes regarding the purpose of this template and further instructions for completion, refer here

	Strand	Digital Systems		Data and Information						Creating Digital Solutions									
	Content Description	Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data (VCDTDS026)		Examine how whole numbers are used as the basis for representing all types of data in digital systems (VCDTDI027)		Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information (VCDTDI028)		Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols (VCDTDI029)		Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities (VCDTCD030)		Design a user interface for a digital system, generating and considering alternative design ideas (VCDTCD031)		Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration (VCDTCD032)		Develop digital solutions as simple visual programs (VCDTCD033)		Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs (VCDTCD034)	
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 #
Digital Systems Investigation	Semester 1 / Grade 5	☑	1	☐		☐		☐		☐		☐		☐		☐		☐	
Numbers Activity	Semester 1 / Grade 5	☐		☑	2	☐		☐		☐		☐		☐		☐		☐	
Student Survey Project a. Collect and interpret data	Semester 2 / Grade 5	☐		☐		☑	3	☐		☐		☐		☐		☐		☐	
Student Survey Project b. Communication of findings	Semester 2 / Grade 5	☐		☐		☐		☑	3	☐		☐		☐		☐		☐	
Programming Project a. Analysis - Requirements	Semester 1 / Grade 6	☐		☐		☐		☐		☑	4	☐		☐		☐		☐	
Programming Project b. Design	Semester 1 / Grade 6	☐		☐		☐		☐		☐		☑	4	☑	4	☐		☐	
Programming Project c. Development	Semester 2 / Grade 6	☐		☐		☐		☐		☐		☐		☐		☑	5	☐	
Programming Project d. Evaluation	Semester 2 / Grade 6	☐		☐		☐		☐		☐		☐		☐		☐		☑	6

Levels 3 and 4 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.

Levels 5 and 6 Achievement Standard

Separated by line. Number in brackets, e.g. (3), can be used as an identifier in various parts of the template.

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. (1)
- Students explain how digital systems use whole numbers as a basis for representing a variety of data types. (2)
- They manage the creation and communication of ideas, information and digital projects collaboratively using validated data and agreed protocols. (3)
- Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. (4)
- They incorporate decision-making, repetition and user interface design into their designs and develop their digital solutions, including a visual program. (5)
- Students explain how information systems and their developed solutions meet current and future needs taking sustainability into account. (6)

Levels 7 and 8 Achievement Standard

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.

Level 5 Assessments

Unit (Title)	Assessment	Achievement Standard/s
Digital Systems Investigation	Mini project involving the investigation of digital systems components and networks	1
Numbers Activity	Test involving questions about the binary number system	2
Student Survey Project a. Collect and interpret data	Questionnaire about school community and development of spreadsheet in Excel with validated data and charts on findings	3
Student Survey Project b. Communication of findings	Communication of findings on school blog or LMS	3

Level 6 Assessments

Unit (Title)	Assessment	Achievement Standard/s
Programming Project a. Analysis	Table - Listing and discussion of functional requirements	4
Programming Project b. Design	Mock-ups and algorithms	4
Programming Project c. Development	Software solution and testing	5
Programming Project d. Evaluation	Written report - Evaluation of how the software solution meets functional requirements	6

DRAFT

Curriculum Area Plans

Digital Technologies Curriculum Area Plan - Sample Program 3 – Years 7 and 8

		Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Year 7	Semester 1		Data transmission – 7.1.1			Digital systems investigation – 7.1.2			Acquiring data – 7.1.3		Analyse and visualise data – 7.1.4			Manage, create and communicate ideas – 7.1.5						
			Network project			Imaging			Issues Project a. Research and data collection		Issues Project b. Developing charts with spreadsheets			Web authoring						
	Semester 2																			
Year 8	Semester 1		Decompose problems – 8.1.1		Design user experience – 8.1.2		Design algorithms – 8.1.3			Develop and modify programs – 8.1.4									Evaluate solutions – 8.1.5	
			Programming Project a. Analysis		Programming Project b. Design					Programming Project c. Development									Programming Project d. Evaluation	
	Semester 2																			
		Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

* Based on 2 x 45 minutes teaching time per week

Draft

Key

Digital Systems

Data and Information

Creating Digital Solutions

Topic, level, semester, sequence

Cross Curriculum Connections

Cross Curriculum Connections

Digital Technologies Level 5-6	Mathematics- Number and Algebra Level 6
Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration (VCDTCD032)	Design algorithms involving branching and iteration to solve specific classes of mathematical problems (VCMNA221)

Draft

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Units of Work

Creating Computer Games

Levels 5 and 6

Unit overview

In this unit of work students apply the processes (analyse, design and develop) 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 prepare algorithms that identify decisions and steps to be followed in the game. They use Scratch to transform their designs into a functioning game. This unit is scheduled to take 10 weeks (three sessions each week) of teaching and learning. The teaching and learning plan focuses on the strands of Data and Information and Creating Digital Solutions.

Digital Technologies Curriculum

Digital Technologies Curriculum Content Descriptions - Levels 5 and 6

Data and Information

- Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols (VCDTDI029)

Creating Digital Solutions

- Design a user interface for a digital system, generating and considering alternative design ideas (VCDTCD031)
- Design, modify and follow simple algorithms represented diagrammatically and in English involving sequences of steps, branching, and iteration (VCDTCD032)
- Develop digital solutions as simple visual programs (VCDTCD033)

Digital Technologies Achievement Standard – Levels 5 and 6

Highlighted sections are addressed in this unit.

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.

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Professional Learning with VCAA Specialist Teachers

Professional learning opportunities

Victorian Curriculum
Foundation–10

Term 3 2017 Statewide Professional Learning Sessions

Victorian Curriculum F–10: Specialist Teachers sessions to support curriculum implementation

As part of the Education State support for implementation of the Victorian Curriculum F-10, professional learning sessions facilitated by Specialist Teachers are being offered. Teachers who attend the sessions will be able to examine and enhance their understanding of a specific curriculum area, and how to develop high quality teaching and learning programs.

There is no cost associated with registering for these sessions.

Ways professional learning can be delivered

Teachers in Victorian government, Catholic and independent schools will be able to access support from Specialist Teachers in one or more of the following ways:

1. Attend full day face-to-face workshops
2. Attend online sessions that are either an hour or 90 minutes duration
3. Request sessions for networks or clusters of schools.

Enquiries:

Any enquiries about Term 3 Specialist Teacher professional learning should be directed to:

Billy Nguyen, Program Officer, VCAA Curriculum Division by email: nguyen.huu.b@edumail.vic.gov.au

Funding for government schools

Additional information relating to funding support for Government Schools can be found below.

http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/viccur-proflearn-specialists.aspx

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

VICTORIA State Government

Types of sessions

Professional Learning Menu		
Civics*	Critical and Creative Thinking	Digital Coding
Ethical Capability	Financial Literacy	Health Education and Personal and Social Capability*
Literacy in the Early Years	Music*	STEM

Planning and Assessment in the Digital Technologies curriculum (F-6)

This session will introduce participants to planning and assessment in the Digital Technologies curriculum from F-6. They will become familiar with scope and sequence, content descriptions and how they link to the achievement standards, indicative progress, the development of rubrics and learning activities. This session will be suitable for all teachers.

Outline:

- Overview of the curriculum
- Scope and sequence
- Content descriptions
- Achievement standards
- Rubrics
- Indicative progress
- Student learning activities

Seymour (or close proximity)	Monday 18 September 9.00am-3.30pm Book Now
Coburg (or close proximity)	Monday 18 September 9.00am-3.30pm Book Now
Manningham (or close proximity)	Tuesday 19 September 9.00am-3.30pm Book Now
Bendigo (or close proximity)	Friday 22 September 9.00am-3.30pm Book Now

Making a booking

Digital Coding - Planning & Assessment - Primary Years - Coburg

Planning and assessment in the Digital Technologies curriculum (F-6)

This Day session will introduce participants to planning and assessment in the Digital Technologies curriculum from F-6. They will become familiar with scope and sequence, content descriptions and how they link to the achievement standards, indicative progress, the development of rubrics and learning activities. This session will be suitable for all teachers.

When

Monday, 18 September 2017
9am-3:30pm

Where

Coburg
*venue to be advised

Select Your Tickets

Registration for Digital Coding - Planning & Assessment - Primary Years - Coburg ○

Waiting List for Digital Coding - Planning & Assessment - Primary Years - Coburg ○

Your Details

First Name

Surname

Email

Phone

School/Organisation

Position

Address

Contact phone number

Dietary requirements

Phil Feain
Curriculum Manager, Digital Technologies

Ph: (03) 9032 1724

feain.philip.a@edumail.vic.gov.au

Digital Technologies curriculum

Analysing, planning and mapping

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY
VICTORIA State Government

Purpose

Why is your school teaching Digital Technologies?

Is it currently in your Annual Implementation Plan?

What to expect

- A word about your presenters
- Development through Digital Technologies curriculum
- Combining strands
- Mapping the curriculum
- Indicative progress
- Linking to other Curriculum Areas

Presenters

Steve Allen
Glenroy West Primary School, Leading Teacher Specialist - Maker Space 3 - 6, ICT sessions F - 2.
Year 3/4 class

Daryl Croke
Mount Ridley P - 12 College
Computing Years 8 - 10
VCE Software Development

VCAA Specialist Teachers in Digital Technologies

0.5 time fraction (half week)

Developing support materials, units of work, indicative progress and professional learning to assist schools in the understanding and delivery of the Digital Technologies curriculum.

In your school

Have you implemented teaching of Digital Technologies? (If so, at which Levels?)

How did you structure sessions?
Standalone lessons, unit of inquiry, specialist subject...

Development in Digital Technologies

Continuum of learning, building on complexity of thinking from previous band.

Three strands (Digital Systems, Data and Information, Creating Digital Solutions) - can be taught in conjunction.

Focus on developing thinking (Computational, Design, Systems) - define problem, develop solution, evaluate.

Levels 3 and 4, Levels 5 and 6 (Primary) - visual programming languages; block-based.

Levels 7 and 8, Levels 9 and 10 (Secondary) - general purpose and object oriented languages; text based.

Data and Information

Foundation – Level 2	Levels 3 and 4	Levels 5 and 6
Recognise and explore patterns in data and represent data as pictures, symbols and diagrams	Recognise different types of data and explore how the same data can be represented in different ways	Examine how whole numbers are used as the basis for representing all types of data in digital systems
Collect, explore and sort data, and use digital systems to present the data creatively	Collect, access and present different types of data using simple software to create information and solve	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to
In others create and organise ideas and information using information systems, and share these with known people in safe online environments	plan, create and communicate ideas and information safely, applying agreed ethical and social protocols	communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols

Developing complexity - what is in focus?

Developing understanding - how are we engaging?

Mapping the Digital Technologies curriculum

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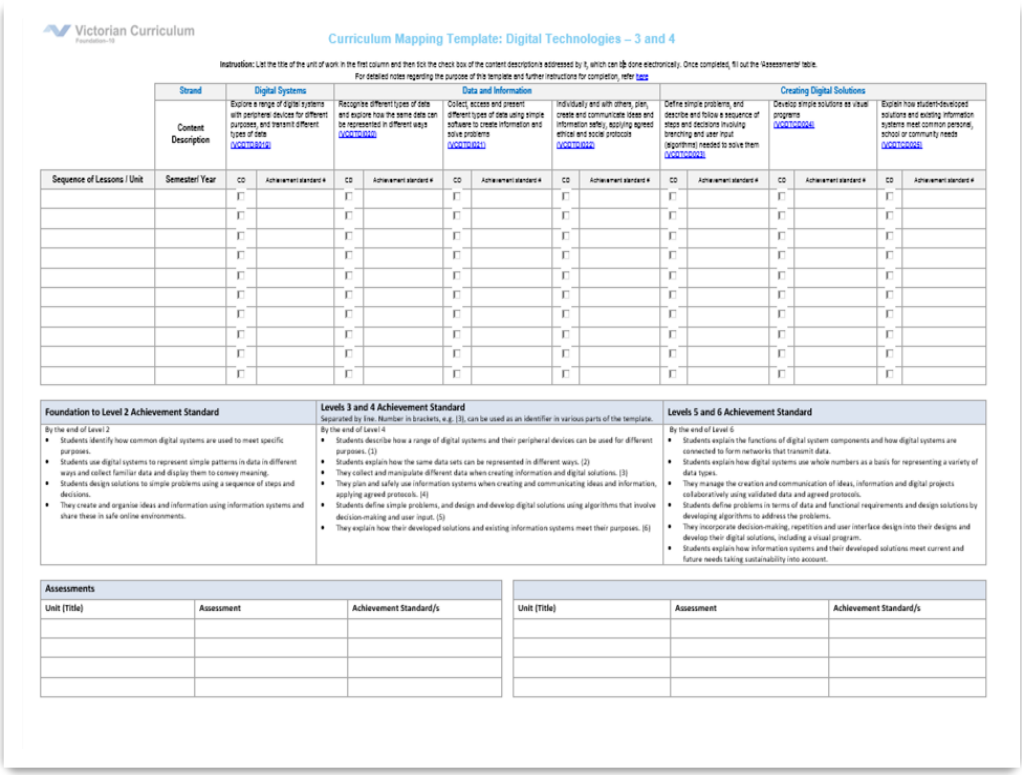
Curriculum Mapping

- Templates from VCAA website – downloadable documents
- Track curriculum across bands, throughout school
- Authentic links to other curriculum areas



Victorian Curriculum

Curriculum Mapping Template: Digital Technologies – 3 and 4

Instruction: Let the title of the unit of work in the first column and then tick the check box of the content descriptions addressed by it, which can be done electronically. Once completed, fill out the 'Assessments' table.

For detailed notes regarding the purpose of this template and further instructions for completion, refer here

Strand	Digital Systems				Data and Information				Creating Digital Solutions					
Content Description	Explore a range of digital systems with peripherals: devices for different purposes, and transmit different types of data (VCDTDI014)		Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)		Collect, access and present different types of data using simple software to create information and solve problems (VCDTDI021)		Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI022)		Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTDI023)		Develop simple solutions as visual programs (VCDTDI024)		Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTDI025)	
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 #
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Foundation to Level 2 Achievement Standard	Levels 3 and 4 Achievement Standard Separated by line. Number in brackets, e.g. (3), can be used as an identifier in various parts of the template.	Levels 5 and 6 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.	By the end of Level 4 • Students describe how a range of digital systems and their peripheral devices can be used for different purposes. (1) • Students explain how the same data sets can be represented in different ways. (2) • They collect and manipulate different data when creating information and digital solutions. (3) • They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols. (4) • Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input. (5) • They explain how their developed solutions and existing information systems meet their purposes. (6)	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.

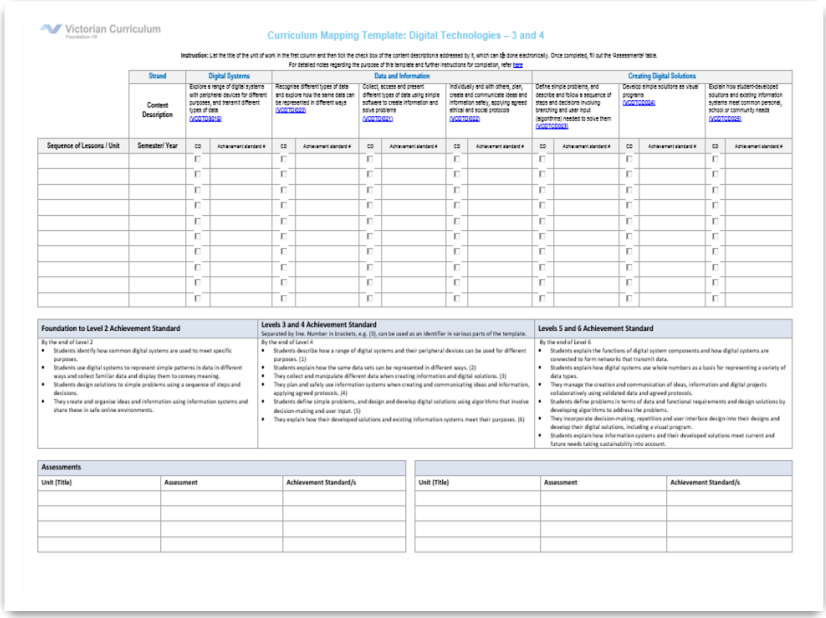
Assessments					
Unit (Title)	Assessment	Achievement Standard/s	Unit (Title)	Assessment	Achievement Standard/s

http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/digitech/digitechcmt.aspx

In your school

Have you seen the Curriculum Mapping templates?

For Digital Technologies or other curriculum areas?



Victorian Curriculum

Curriculum Mapping Template: Digital Technologies – 3 and 4

Instruction: List the title of the unit of work in the first column and then tick the check box of the content descriptions addressed by it, which can be done electronically. Once completed, fill out the 'Assessments' table.

For detailed notes regarding the purpose of this template and further instructions for completion, refer here

Strand	Digital Systems		Data and Information				Creating Digital Solutions			
Content Description	Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (VCDTDI061)		Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI062)		Collect, access and present different types of data using simple software to create information and solve problems (VCDTDI063)		Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI064)		Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTDI065)		Develop simple solutions as visual programs (VCDTDI066)		Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTDI067)	
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 #
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Foundation to Level 2 Achievement Standard	Levels 3 and 4 Achievement Standard	Levels 5 and 6 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.	Separated by line. Number in brackets, e.g. (3), can be used as an identifier in various parts of the template. By the end of Level 4 • Students describe how a range of digital systems and their peripheral devices can be used for different purposes. (1) • Students explain how the same data sets can be represented in different ways. (2) • They collect and manipulate different data when creating information and digital solutions. (3) • They plan and safely use information systems when creating and communicating ideas and information, applying agreed protocols. (4) • Students define simple problems, and design and develop digital solutions using algorithms that involve decision-making and user input. (5) • They explain how their developed solutions and existing information systems meet their purposes. (6)	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.

Assessments

Unit (Title)	Assessment	Achievement Standard/s

Unit (Title)	Assessment	Achievement Standard/s

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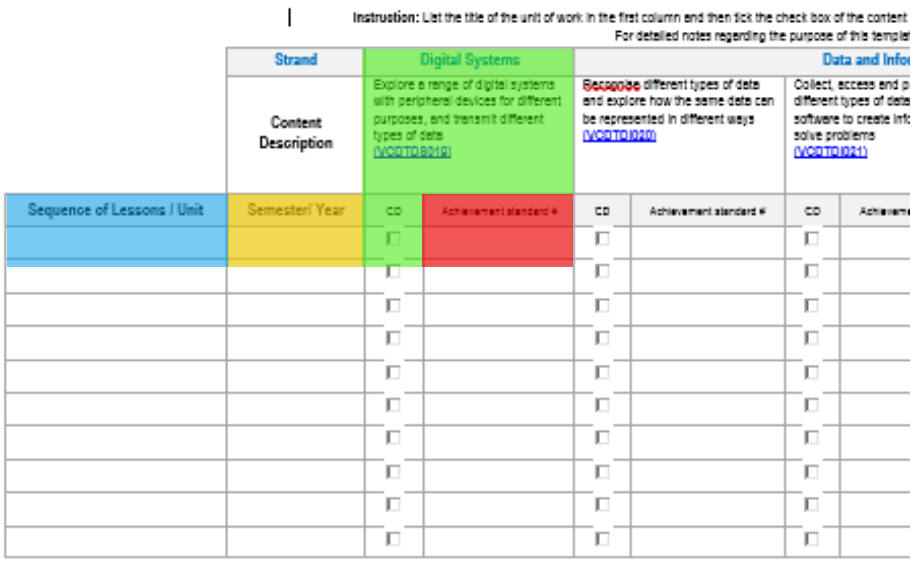
Curriculum Mapping – VCAA templates

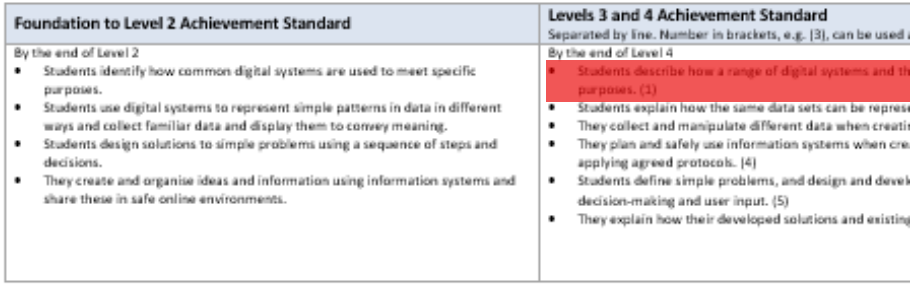
Sections for using Curriculum Mapping Templates:

- Sequence or unit title
- When taught (semester/year)
- Content Descriptions & Achievement Standards
- Related assessment tasks



Instruction: List the title of the unit of work in the first column and then tick the check box of the content
For detailed notes regarding the purpose of this templat

	Strand	Digital Systems		Data and Info			
	Content Description	Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (VCDTDI021)		Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)		Collect, access and p different types of data software to create inf solve problems (VCDTDI021)	
Sequence of Lessons / Unit	Semester/ Year	CD	Achievement standard #	CD	Achievement standard #	CD	Achievem



Foundation to Level 2 Achievement Standard	Levels 3 and 4 Achievement Standard Separated by line. Number in brackets, e.g. (3), can be used
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.	By the end of Level 4 • Students describe how a range of digital systems and th purposes. (1) • Students explain how the same data sets can be repres • They collect and manipulate different data when creati • They plan and safely use information systems when cre applying agreed protocols. (4) • Students define simple problems, and design and devel decision-making and user input. (5) • They explain how their developed solutions and existing

Assessments		
Unit (Title)	Assessment	Achievement Standard/s

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Draft Completed Curriculum Map

Instruction: List the title of the unit of work in the first column and then tick the check box of the content description/s addressed by it, which can be done electronically. Once completed, fill out the 'Assessments' table.
For detailed notes regarding the purpose of this template and further instructions for completion, refer here

Strand	Digital Systems		Data and Information						Creating Digital Solutions									
Content Description	Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data (VCDTDI026)		Examine how whole numbers are used as the basis for representing all types of data in digital systems (VCDTDI027)		Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information (VCDTDI028)		Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols (VCDTDI029)		Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities (VCDTDI030)		Design a user interface for a digital system, generating and considering alternative design ideas (VCDTDI031)		Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration (VCDTDI032)		Develop digital solutions as simple visual programs (VCDTDI033)		Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs (VCDTDI034)	
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 #
Our World	Semester 2 / Level 5 and 6	☐		☐		☐		☐		☐		☐		☐		☐		☐	
Habitat analysis		☐		☐		☑	3	☑	3	☐		☐		☐		☐		☐	
Digital Systems Communicate?	Semester 1 / Level 5 and 6	☐		☐		☐		☐		☐		☐		☐		☐		☐	
Data: here to there!		☑	1	☐		☐		☐		☐		☐		☐		☐		☐	
Data representation		☐		☑	2	☐		☐		☐		☐		☐		☐		☐	
Draw-a-Shape	Semester 1 / Level 5 and 6	☐		☐		☐		☐		☐		☐		☐		☐		☐	
Define a problem		☐		☐		☐		☐		☑	4	☐		☐		☐		☐	
Create algorithms		☐		☐		☐		☐		☐		☐		☑	4	☐		☐	
Create code based on algorithms		☐		☐		☐		☐		☐		☑	4	☐		☑	5	☐	
Reflection		☐		☐		☐		☐		☐		☐		☐		☐		☑	6

Levels 3 and 4 Achievement Standard	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.		
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.	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. (1) • Students explain how digital systems use whole numbers as a basis for representing a variety of data types. (2) • They manage the creation and communication of ideas, information and digital projects collaboratively using validated data and agreed protocols. (3) • Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. (4) • They incorporate decision-making, repetition and user interface design into their designs and develop their digital solutions, including a visual program. (5) • Students explain how information systems and their developed solutions meet current and future needs taking sustainability into account. (6)	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.

Assessments

Unit (Title)	Assessment	Achievement Standard/s
Our World	Report: Investigate and present data on a variety of habitats and discuss those suitable for animal survival	3
Digital Systems Communicate?	Report: Explain how data can be transmitted between two devices	1
	Report: After investigating the Binary number system, students write a message using Binary and ASCII table.	2

Unit (Title)	Assessment	Achievement Standard/s
Draw-a-Shape	Report: Students define a problem and present findings	4
	Folio of algorithms: Drawing selected shape/s	4
	Folio of evidence of students using algorithms to create code to draw shapes	5
	Report: Reflection/evaluation prompt *Did your shape/s draw correctly?* *What were the challenges?*	6

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Curriculum Area Plans

Digital Technologies Curriculum Area Plan - Sample Program 1 – Years 5 and 6

	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Year 5	Semester 1						Components of digital systems – 5.1.1						Examination of whole numbers – 5.1.2						
							Digital Systems Communicate a. Data: Here to there						Digital Systems Communicate b. Data representation						
	Semester 2						Interpret and visualise data – 5.2.1			Online collaborative projects – 5.2.2									
							Our World Habitat analysis												
Year 6	Semester 1			Define problems – 6.1.1			Design user interface – 6.1.2		Design algorithms – 6.1.3		Develop simple visual programs – 6.1.4						How solutions meet needs – 6.1.5		
				Draw-a-Shape a. Define a problem			Draw-a-Shape b. Create interface and algorithms				Draw-a-Shape c. Create code based on algorithms						Draw-a-Shape d. Reflection		
	Semester 2																		
	Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

* Based on 1 hour of teaching time per week

Key: Digital Systems | Data and Information | Creating Digital Solutions | Topic, level, semester, sequence

DRAFT

Curriculum Area Plans

Digital Technologies Curriculum Area Plan - Sample Program 1 – Years 5 and 6

	Week	1	2	3	4	5	6	7	8	9
Year 5	Semester 1						**Components of digital systems – 5.1.1**			
							Digital Systems Communicate a. Data: Here to there			
	Semester 2						**Interpret and visualise data – 5.2.1**			**Online collab – 5.2.2**
							Our World Habitat analysis			
Year 6	Semester 1			**Define problems – 6.1.1**			**Design user interface – 6.1.2**		**Design algorithms – 6.1.3**	
				Draw-a-Shape a. Define a problem			Draw-a-Shape b. Create interface and algorithms			
	Semester 2									
	Week	1	2	3	4	5	6	7	8	9

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Key

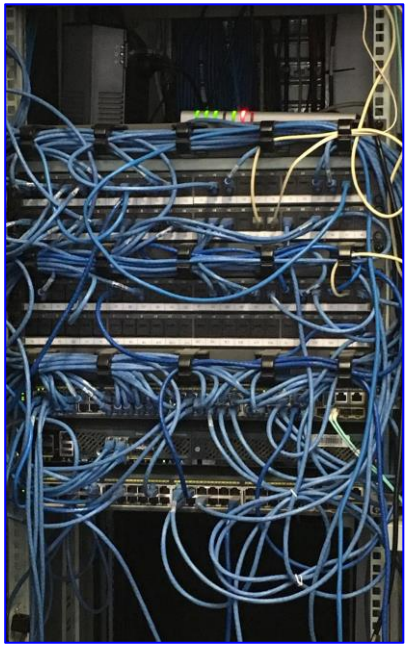
Digital Systems

Data and Information

Addressing Content – Level 6

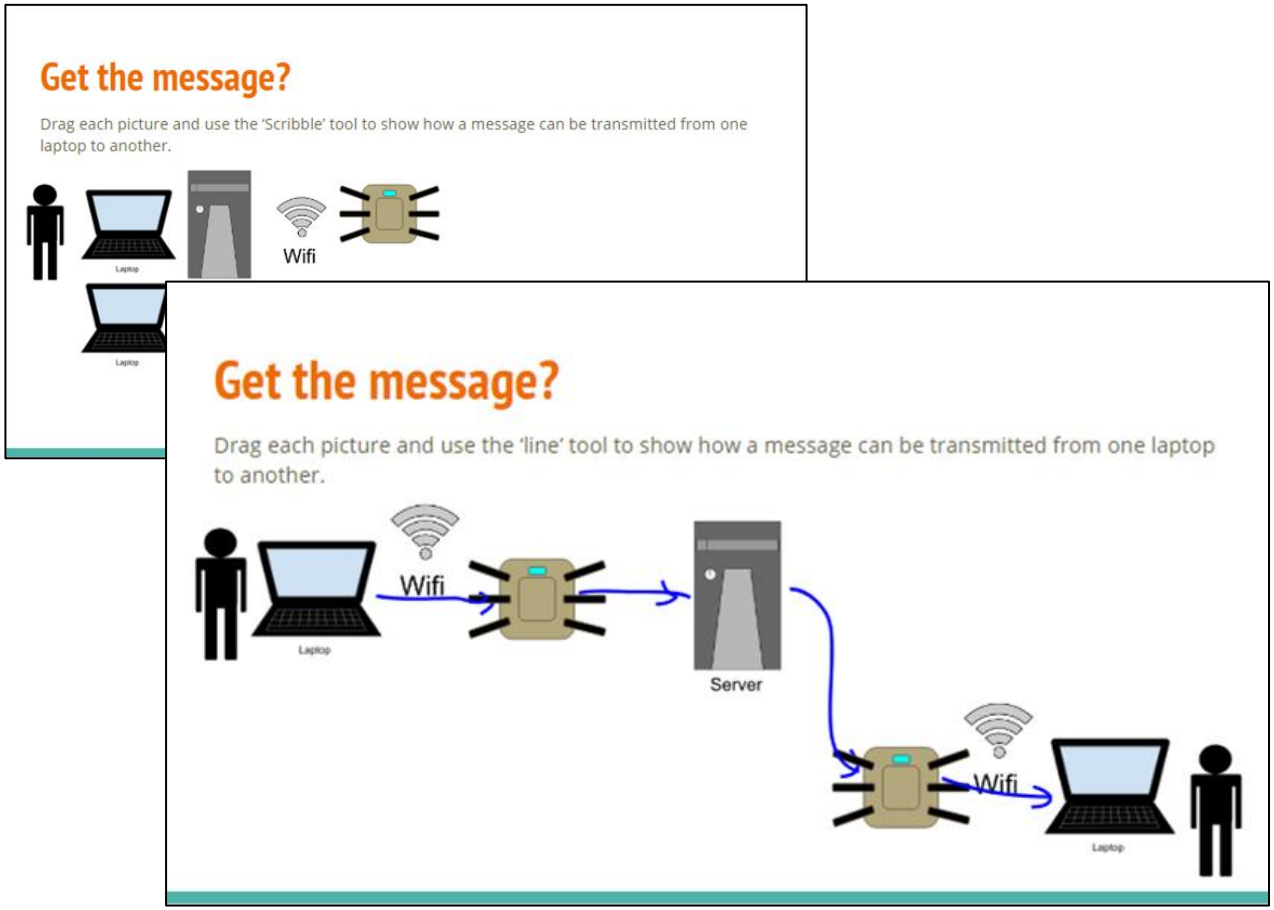
Digital Systems	Data and Information	Creating Digital Solutions
Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data	Examine how whole numbers are used as the basis for representing all types of data in digital systems	Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities
	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information	Design a user interface for a digital system, generating and considering alternative design ideas
	Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration
		Develop digital solutions as simple visual programs
		Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs

Digital Systems Levels 5 and 6



Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data (VCDTDS026)

Digital Systems Levels 5 and 6



Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data (VCDTDS026)

Links between strands – Level 6

Digital Systems	Data and Information	Creating Digital Solutions
Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data	Examine how whole numbers are used as the basis for representing all types of data in digital systems	Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities
	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information	Design a user interface for a digital system, generating and considering alternative design ideas
	Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration
		Develop digital solutions as simple visual programs
		Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs

Links between strands – Level 6

Digital Systems	Data and Information	Creating Digital Solutions
Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data	Examine how whole numbers are used as the basis for representing all types of data in digital systems	Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities
	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information	Design a user interface for a digital system, generating and considering alternative design ideas
	Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration
		Develop digital solutions as simple visual programs
		Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs

Curriculum Links

Content Descriptions and Achievement Standards

Foundation to Level 2 Content Descriptions	Levels 3 and 4 Content Descriptions
Creating Digital Solutions	**Creating Digital Solutions**
Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (VCDTCD017)	Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTCD023)
Explore how people safely use common information systems to meet information, communication and recreation needs (VCDTCD018)	Develop simple solutions as visual programs (VCDTCD024)
	Explain how student-developed solutions and existing information systems meet common personal, school or community needs (VCDTCD025)
Foundation to Level 2 Achievement Standard	**Levels 3 and 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.	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.

http://victoriancurriculum.vcaa.vic.edu.au/technologies/digital-technologies/curriculum/f-10

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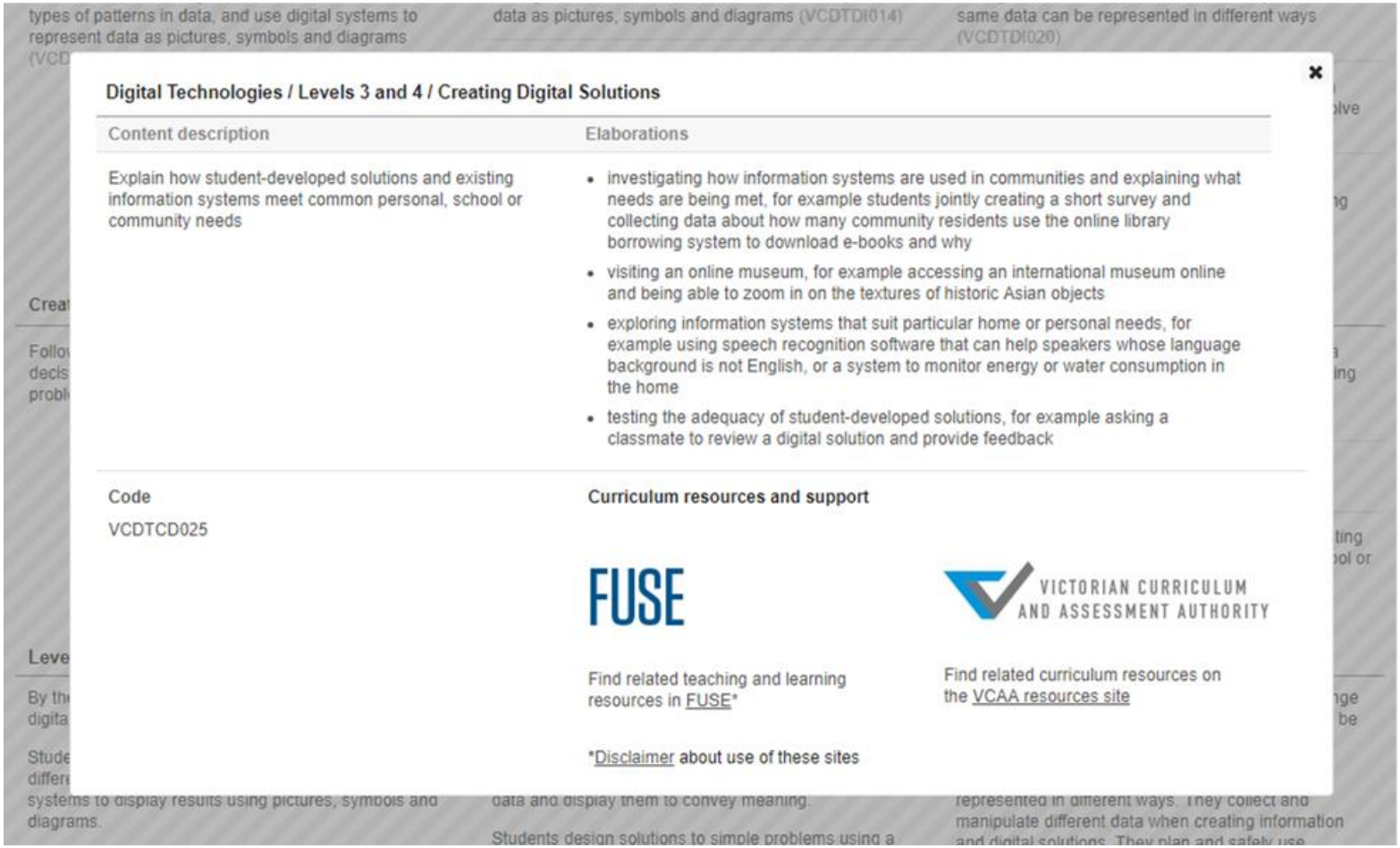
Content Descriptions and Elaborations



Digital Technologies / Levels 3 and 4 / Creating Digital Solutions

Content description	Elaborations
Explain how student-developed solutions and existing information systems meet common personal, school or community needs	• investigating how information systems are used in communities and explaining what needs are being met, for example students jointly creating a short survey and collecting data about how many community residents use the online library borrowing system to download e-books and why • visiting an online museum, for example accessing an international museum online and being able to zoom in on the textures of historic Asian objects • exploring information systems that suit particular home or personal needs, for example using speech recognition software that can help speakers whose language background is not English, or a system to monitor energy or water consumption in the home • testing the adequacy of student-developed solutions, for example asking a classmate to review a digital solution and provide feedback

Code

VCDTCD025

Curriculum resources and support

FUSE

Find related teaching and learning resources in FUSE*

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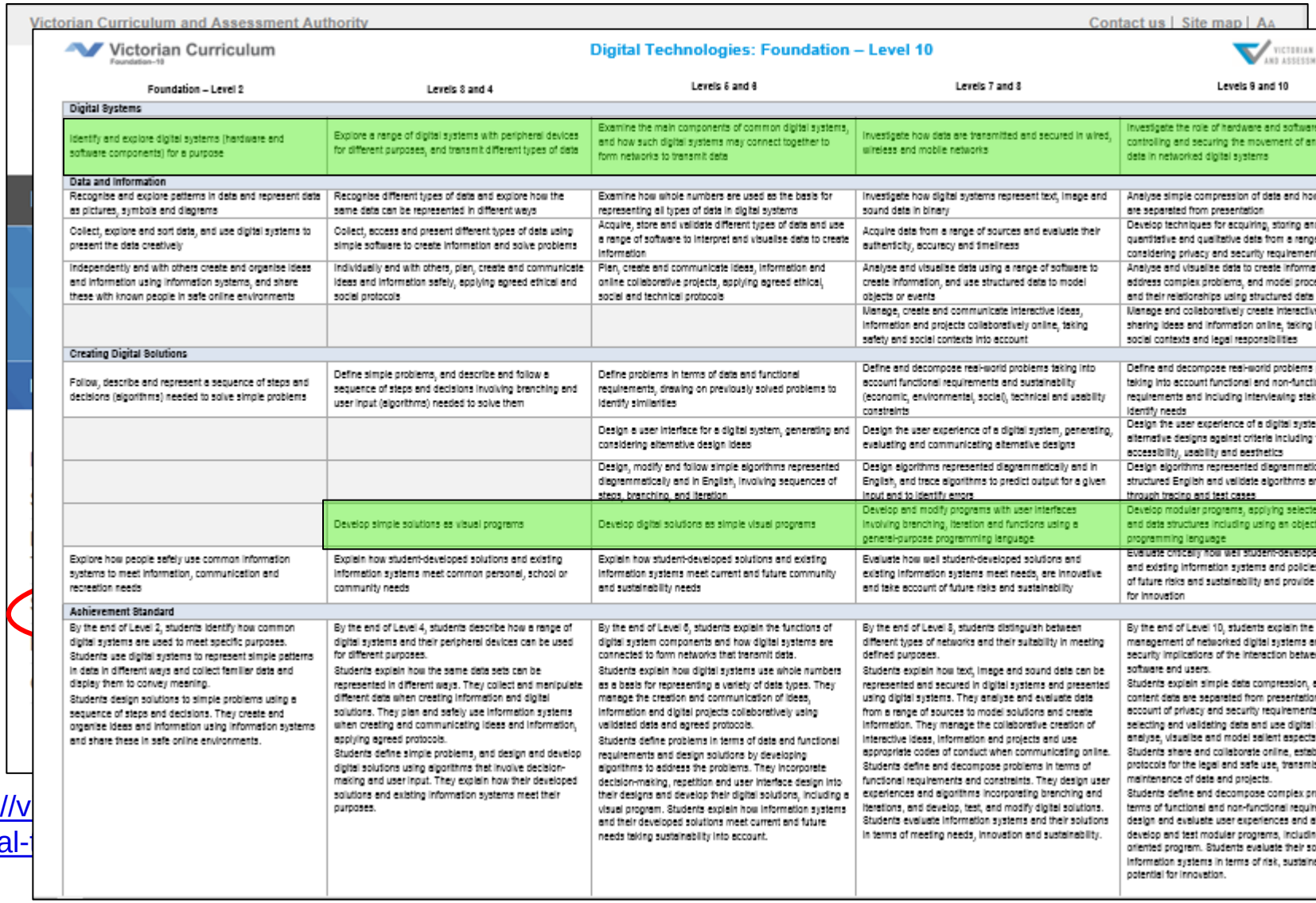
Find related curriculum resources on the VCAA resources site

*Disclaimer about use of these sites

Scope and Sequence



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Victorian Curriculum Foundation–10

Digital Technologies: Foundation – Level 10

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	Foundation – Level 2	Levels 3 and 4	Levels 5 and 6	Levels 7 and 8	Levels 9 and 10
Digital Systems					
	Identify and explore digital systems (hardware and software components) for a purpose	Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data	Examine the main components of common digital systems, and how such digital systems may connect together to form networks to transmit data	Investigate how data are transmitted and secured in wired, wireless and mobile networks	Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems
Data and Information					
	Recognise and explore patterns in data and represent data as pictures, symbols and diagrams	Recognise different types of data and explore how the same data can be represented in different ways	Examine how whole numbers are used as the basis for representing all types of data in digital systems	Investigate how digital systems represent text, image and sound data in binary	Analyse simple compression of data and how content data are separated from presentation
	Collect, explore and sort data, and use digital systems to present the data creatively	Collect, access and present different types of data using simple software to create information and solve problems	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information	Acquire data from a range of sources and evaluate their authenticity, accuracy and timeliness	Develop techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, considering privacy and security requirements
	Independently and with others create and organise ideas and information using information systems, and share these with known people in safe online environments	Individually and with others, plan, create and communicate ideas and information safely, applying agreed ethical and social protocols	Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	Analyse and visualise data using a range of software to create information, and use structured data to model objects or events	Analyse and visualise data to create information and address complex problems, and model processes, entities and their relationships using structured data
				Manage, create and communicate interactive ideas, information and projects collaboratively online, taking safety and social contexts into account	Manage and collaboratively create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities
Creating Digital Solutions					
	Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems	Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them	Define problems in terms of data and functional requirements, drawing on previously solved problems to identify similarities	Define and decompose real-world problems taking into account functional requirements and sustainability (economic, environmental, social), technical and usability constraints	Define and decompose real-world problems precisely, taking into account functional and non-functional requirements and including interviewing stakeholders to identify needs
			Design a user interface for a digital system, generating and considering alternative design ideas	Design the user experience of a digital system, generating, evaluating and communicating alternative designs	Design the user experience of a digital system, evaluating alternative designs against criteria including functionality, accessibility, usability and aesthetics
			Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration	Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors	Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases
		Develop simple solutions as visual programs	Develop digital solutions as simple visual programs	Develop and modify programs with user interfaces involving branching, iteration and functions using a general-purpose programming language	Develop modular programs, applying selected algorithms and data structures including using an object-oriented programming language
	Explore how people safely use common information systems to meet information, communication and recreation needs	Explain how student-developed solutions and existing information systems meet common personal, school or community needs	Explain how student-developed solutions and existing information systems meet current and future community and sustainability needs	Evaluate how well student-developed solutions and existing information systems meet needs, are innovative and take account of future risks and sustainability	Evaluate critically how well student-developed solutions and existing information systems and policies take account of future risks and sustainability and provide opportunities for innovation
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.	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.	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. 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.	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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Curriculum Leaders

Reviewing planning and delivery

Monitoring with your teams:

- [x] Have we covered the whole of the Achievement Standards over the 2 year band?

- [x] Will students have time for explicit teaching and demonstrating understanding?

- [x] Is the curriculum guaranteed and viable?

From Curriculum Map to Lesson Plan

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Curriculum Map

	Strand	Digital Systems					
	Content Description	Investigate how data are transmitted and secured in wired, wireless and mobile networks (VCDTDS035)		Investigate how digital systems represent text, image and sound data in binary (VCDTDI036)		Acquire range of evaluate authentic and timel (VCDTDI	
Sequence of Lessons / Unit	Semester/ Year	CD	Achievement standard #	CD	Achievement standard #	CD	
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		☐		☐		☐	
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Curriculum Map

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	☐		☐		☐		☐		☐		☐		☐		☐		☐		☐		☐		☐	

	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**
m components and how digital systems t data. ole numbers as a basis for representing a n of ideas, information and digital and agreed protocols. d functional requirements and design s the problems. and user interface design into their cluding a visual program. d their developed solutions meet current count.	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 security implications of the interaction between • Students explain simple data compression, and w presentation. • They take account of privacy and security require use digital systems to analyse, visualise and mod • Students share and collaborate online, establishi transmission and maintenance of data and proje • Students define and decompose complex proble requirements. • They design and evaluate user experiences and a programs, including an object-oriented program. • Students evaluate their solutions and informatio potential for innovation.

ent	**Achievement Standard/s**	**Unit (Title)**	**Assessment**

VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY

VICTORIA State Government

Curriculum Area Plans

Digital Technologies Curriculum Area Plan - Sample Program – Years 7 and 8

	Week	1	2	3	4	5	6	7	8	9
Year 7	Semester 1						Data representation – 7.1.2 Zeroes and Ones			
	Semester 2									
Year 8	Semester 1									
	Semester 2									
	Week	1	2	3	4	5	6	7	8	9

Unit of Work

Unit planner template

Unit title: Zeros and One	Subject: Computer Studies	Year level(s): 7	Duration of unit: 2 Weeks or 4 lessons

Identify curriculum		
Unit Overview	**Learning Intentions (overall)**	
	Knowledge	**Skills**
We live in the world of Big Data, students need to how data is manipulated and represented in a digital system. This unit will cover the most common forms of media and demonstrate to students how computers represent this data.	To know be able to recognise the different number systems computers uses to represent text, image and sound data in binary.	To be able to explain how text, image and sound data can be represented and secured in digital systems and presented using digital systems.
Content descriptors (Victorian Curriculum)		
To know how digital systems represent text, image and sound data in binary		

Unit of Work

Assessment (including learning tasks)		
Prior Knowledge	**Formative Assessment**	**Summative Assessment**
At this level we may have to assume that the prior knowledge could be very low. Students may be familiar with Binary from maths and other number systems. They will be familiar with terms such as pixels and RGB. They probably will know something about colour theory from art.	Teacher observation of classroom tasks and in class discussions. Teachers observation of uploaded work and homework tasks. Teacher review of student reflection questions, such as exit passes.	Students will submit a report online that will demonstrate their ability to recognise how different data is represented on a computer. The report will include tables of data and answers to supplied questions.

Page Break

	Learning Intentions	**Success Criteria**	**Teaching Strategies**	**Suggested Formative Assessment**
Wks 1	To learn how text can be represented in binary. To learn how images can be represented in RGB and Hexadecimal.	I can convert text into a binary signal. I can context a binary message into text. I can identify the RGB and Hexadecimal values of selected pixels. I understand how colour is represented on a computer screen	Direct instruction of concept Modelling how representations are made Micro-teaching concepts to small groups or individuals Allow students to generate their own expectations and review their own work.	Teacher observation of classroom tasks and in class discussions. Teachers observation of uploaded work and homework tasks. Teacher review of student reflection questions, such as exit passes.
Wks 2	To learn how audio is digitised in a computer To learn how audio can be represented in binary format.	I can identify individual samples of an audio file. I understand how audio is digitised in a computer	Direct instruction of concept Modelling how representations are made Micro-teaching concepts to small groups or individuals	Teacher observation of classroom tasks and in class discussions. Teachers observation of uploaded work and homework tasks.

Options for delivery

Primary

- Specialist teacher delivers a standalone class
- Standalone class being taught by a generalist teacher
- Integrated unit of work (term or semester)

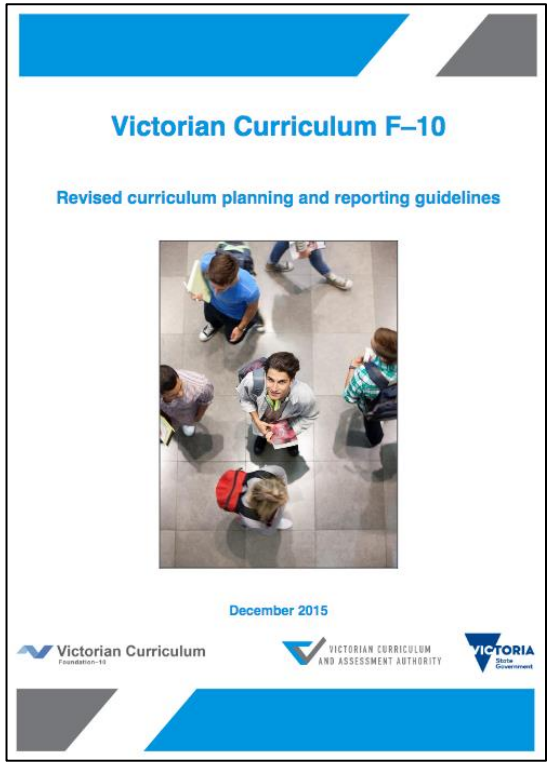
Secondary

- Standalone subject - compulsory
- Standalone subject - elective
- Integrated unit of work - part or full

Due to increasing specialisation in some content, less opportunity for integration.

Ample opportunity for cross-over in some areas (Data and Information).

Context



- Victoria Curriculum F-10 Revised curriculum planning and reporting guidelines, December 2015

- No prescribed model of how Digital Technologies should be taught. This a school decision.

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Digital Technologies curriculum

Evaluation for this webinar:

https://vcaa.qualtrics.com/jfe/form/SV_0I0XVanSRwxtrjD

Steve Allen
Glenroy West Primary School
VCAA Specialist Teacher - Digital Technologies

Daryl Croke
Mount Ridley P - 12 College
VCAA Specialist Teacher - Digital Technologies