

The Victorian Curriculum

Digital Technologies
Webinar – 24 August 2017

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What you need to follow

Digital Technologies Curriculum

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

Victorian Curriculum and Assessment Authority

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Digital Technologies

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Rationale and Aims

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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>

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 Manage, create and communicate interactive ideas, information and projects collaboratively online, taking into account social contexts into account	Analyse and visualise data to create information and address complex problems, and model processes, entities and their relationships using structured data 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 data in 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.

DigiPubs – Resources

<http://www.digipubs.vic.edu.au/pubs/digitaltechnologies/digital-technologies-curriculum>

The screenshot shows the DigiPubs website interface. At the top, the logo 'DIGIPUBS' is displayed in a stylized font. Below it is a navigation bar with links for 'Home', 'DigiPubs', 'VCAA', and 'Contact'. A search icon is visible on the right side of the navigation bar. The main heading is 'Digital Technologies Curriculum'. Below this, there is a sub-heading 'Digital Technologies Curriculum' and a brief description: 'Explore the resources to support your teaching of the Digital Technologies Curriculum.' There are six circular icons representing different resource categories: 'Why Digital Technologies?' (a red button with '??'), 'Where to Start' (a globe with a megaphone), 'Designing the Learning' (a person at a computer with a 'DATA' label), 'Teaching and Learning Resources' (a person with arms raised), 'Assessment' (a laptop and keyboard), and 'Find out more' (two children at a desk). To the right of these icons is a list of 'Digital Technologies Curriculum' resources, including links to 'Home', 'Why Digital Technologies?', 'Where to Start?', 'School Case Studies', and a list of schools and colleges. Below the icons is a 'Next Page' link. At the bottom of the page, there is an 'About DigiPubs' section with a description: 'DigiPubs are digital publications which provide practical advice and resources that can be accessed online on any device through any browser.' The footer includes the logos for 'VICTORIA State Government' and 'Education and Training', and a copyright notice: '© Copyright 2017 Department of Education and Training. All rights reserved.'

Frequently Asked Questions

<http://www.digipubs.vic.edu.au/pubs/digitaltechnologies/faqs>

DIGIPUBS



✉ digital.learning@edumail.vic.gov.au

Home

DigiPubs

VCAA

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Digital Technologies Curriculum

Frequently Asked Questions

Click on the plus sign for the answers.

1. Where do we get copies of semester plans?	+
2. What level of programming skills will teachers need to teach the Creating Digital Solutions strand of the curriculum?	+
3. Are there standards at each level, or just bands, for Digital Technologies?	+
4. Data is a word that comes up frequently. Does the meaning include images?	+

Digital Technologies

Curriculum

- Home
- Why Digital Technologies?
- Where to Start?
- School Case Studies
 - Aitken Creek Primary School
 - Box Hill High School
 - Dallas Brooks Community Primary School
 - John Monash Science School
 - Matthew Flinders Girls Secondary College
 - Mildura West Primary School
- [Designing the Learning](#)

Planning and reporting

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

Victorian Curriculum F–10

Revised curriculum planning and reporting guidelines



December 2015

 Victorian Curriculum
Foundation–10

 VICTORIAN CURRICULUM
AND ASSESSMENT AUTHORITY

 VICTORIA
State
Government

Resource samples

Curriculum Mapping

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](#).

Sequence of Lessons / Unit	Semester / Year	Digital Systems				Data and Information				Creating Digital Solutions								
		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	<input checked="" type="checkbox"/>	1	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Numbers Activity	Semester 1 / Grade 5	<input type="checkbox"/>		<input checked="" type="checkbox"/>	2	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Student Survey Project a. Collect and interpret data	Semester 2 / Grade 5	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	3	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Student Survey Project b. Communication of findings	Semester 2 / Grade 5	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	3	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Programming Project a. Analysis - Requirements	Semester 1 / Grade 6	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	4	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		
Programming Project b. Design	Semester 1 / Grade 6	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>	4	<input type="checkbox"/>		
Programming Project c. Development	Semester 2 / Grade 6	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>	5	
Programming Project d. Evaluation	Semester 2 / Grade 6	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	6

Levels 3 and 4 Achievement Standard	Levels 5 and 6 Achievement Standard	Levels 7 and 8 Achievement Standard
<p>By the end of Level 4</p> <ul style="list-style-type: none"> 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. 	<p>By the end of Level 6</p> <ul style="list-style-type: none"> 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) 	<p>By the end of Level 8</p> <ul style="list-style-type: none"> 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

Cross Curriculum Connections

Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration
[\(VCDTCD032\)](#)

Digital Technologies Level 5-6

Design algorithms involving branching and iteration to solve specific classes of mathematical problems (VCMNA221)

Mathematics- Number and Algebra Level 6

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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 (VCDTI029)

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.

Professional Learning with VCAA Specialist Teachers

Professional learning opportunities



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/f10index.aspx>

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 (7-10)		
<p>This session will introduce participants to planning and assessment in the Digital Technologies curriculum from 7-10. 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 of Digital Technologies.</p>		
	Manningham (or close proximity)	Friday 25 August 9.00am-3.30pm Book Now 
	Moorabbin (or close proximity)	Friday 25 August 9.00am-3.30pm Book Now 
	Shepparton (or close proximity)	Wednesday 6 September 9.00am-3.30pm Book Now 
	Wangaratta (or close proximity)	Wednesday 20 September 9.00am-3.30pm Book Now 

Making a booking



Digital Coding - Planning & Assessment - Secondary Years - Moorabbin

Planning and assessment in the Digital Technologies curriculum (7-10)

This Day session will introduce participants to planning and assessment in the Digital Technologies curriculum from 7-10. 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 of Digital Technologies.

When

Friday, 25 August 2017
9am-3:30pm

Where

Moorabbin
*venue to be advised

Select Your Tickets

Registration for Digital Coding - Planning & Assessment - Secondary Years - Moorabbin

Waiting List for Digital Coding - Planning & Assessment - Secondary Years - Moorabbin

Your Details

First Name

Surname

Email

Phone

School/Organisation

Position

Address

Contact phone number

Dietary requirements

Notice

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Digital Technologies

Digital Learning and Teaching Victoria (DLTV)

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What to expect

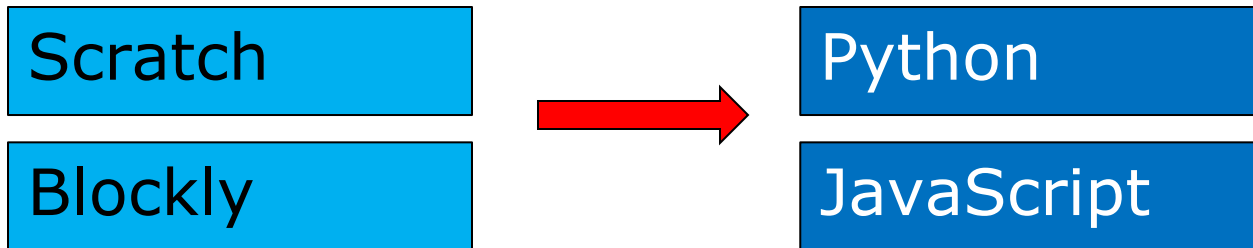
- What is Digital Technologies?
- Ways of Thinking
- Curriculum Overview
 - Scope & Sequence
 - Strands & Levels
- Key concepts
- Content Descriptions and Achievement standards

Points to note

- **Computational thinking** is the main focus of this curriculum. Students will develop problem solving skills when creating digital solutions.
- As this is a new curriculum, older students may need to begin their learning at lower levels. This will provide the necessary scaffolding and ultimately support progression of learning - **continuum of learning**.
- Around **50 per cent** of the curriculum can be taught without the use of a computer - developing the thinking and concepts. We refer to this as **'unplugged'** learning.

What is Digital Technologies?

- Terminology is new for teachers and students. Unpacking vocabulary leads to learning opportunities - Glossary.
- Students will learn various programming concepts and use programming languages (coding) in order to create customised digital solutions that will solve specific problems.



Why Digital Technologies?

Digital Technologies empowers students to move from being confident users and consumers of digital systems ...

... to being discerning and creative problem solvers, equipped for an increasingly knowledge-based economy and society.

More than coding...

Out of 42 content descriptions,

do you know how many include coding?

Makes use of BUT is not the same as ICT...

Making important distinctions

DT vs dt vs ICT

Digital Technologies (VC)

New curriculum
Discipline-based learning area
Creating digital solutions

ICT general capability (AC)

Using digital technologies safely
at home, at school and play to
learn, communicate and collaborate

Confident
DEVELOPERS
of digital solutions

Shared understandings
Key terms: What do they mean?

digital technologies (VC)

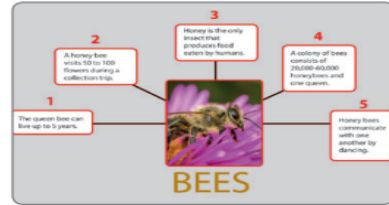
Digital systems such as tablets,
desktops, and devices such as
phones, cameras,
robots and data probes

Effective **USERS** of
ICT across all Learning
Areas

Digital Technologies vs ICT

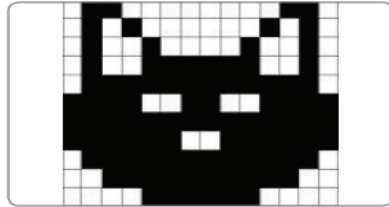
1

Use digital concept mapping tools to plan and select research tasks.



2

Create and code an image using black and white squares. Invite a classmate to decode and recreate the image.



3

Create an interactive story with user-input using a familiar programming language.



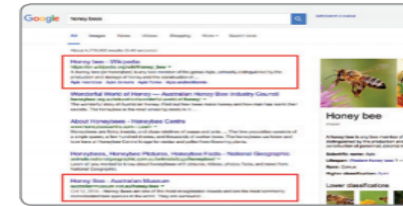
Compare a transport network and computer network to explore ideas about pathways, reliability, protocols and security.

4



Use presentation software to present findings of an inquiry that includes text, images and video.

5



Use a search engine effectively as a research tool.

6

Where are we?

This is a new curriculum area, with unfamiliar terminology and contexts.

Take a moment to examine your own confidence and understanding about the Digital Technologies curriculum.

How would you rate your current understanding?

1. **Digital what?**
2. **I know it is there but it doesn't make sense**
3. **I can teach some ideas and looking to refine skills and knowledge**
4. **I'm very confident; have created my own app to write my reports**

Ways of Thinking

Ways of Thinking

- Students apply different ways of thinking when determining and using appropriate data, processes and digital systems to create innovative digital solutions.
- These ways of thinking are:
 - **Computational Thinking**
 - **Design Thinking**
 - **Systems Thinking**

Computational Thinking

Main focus of the curriculum - thinking, can be explored 'unplugged'



Computational thinking, for example

- modelling aspects of solutions
- sequencing steps and decisions (algorithms)
- deconstructing problems into their component parts

- **Decomposition** - deconstructing problems
- **Algorithms** - steps and decisions required to solve a problem in sequence
- Translate human thinking into instructions for a computer - models
- **Unplugged** - computational thinking skills can be developed without a computer, as a problem solving approach

Image credit: Paula Christophersen

Design Thinking

Inquiry into developing solutions to problems



Design thinking, for example

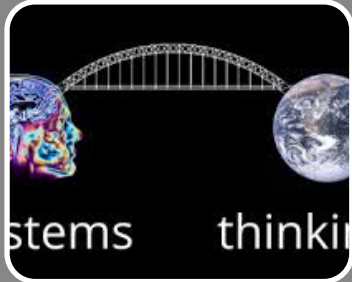
- generating ideas for further development
- evaluating ideas, based on criteria
- conceiving opportunities for new solutions

Image credit: Paula Christophersen

- From imagination to creative and successful solutions - ideation
- Links to The Arts
- Design of **interface** - how people interact with solution
- Evaluation - does it meet needs? Is there a better way?

Systems Thinking

Connections, being part of a whole



Systems thinking, for example

- seeing connections between solutions, systems and society
- identifying components of systems
- identifying intended and unintended outputs of a system

Image credit: Paula Christophersen

- **Output** - action occurs after receiving **input (Intended/unintended outputs)**
- Elements of a system communicate and interact interdependently
- Impacts and implications e.g. employment, environment



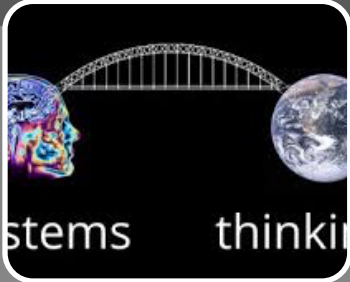
Computational thinking, for example

- modelling aspects of solutions
- sequencing steps and decisions (algorithms)
- deconstructing problems into their component parts



Design thinking, for example

- generating ideas for further development
- evaluating ideas, based on criteria
- conceiving opportunities for new solutions



Systems thinking, for example

- seeing connections between solutions, systems and society
- identifying components of systems
- identifying intended and unintended outputs of a system

Digital Technologies Curriculum

Scope and Sequence F-10

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

Content Descriptions
What teachers teach!

Achievement Standards
What teachers assess students against!

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

Digital Technology Strands

Strands

Digital Systems	Data and Information	Creating Digital Solutions
<p>Focuses on the hardware, software and network components of digital systems. Students initially learn about a range of hardware and software, and progress to an understanding of how data are transmitted between components within a system, and how the hardware and software interact to form networks.</p>	<p>Focuses on the properties of data, how they are collected and represented, and how they are interpreted in context to produce information. Students learn how data are represented and structured symbolically for use by digital systems, as well as techniques for collecting, managing and organising data that is used to solve problems and create and communicate ideas and information.</p>	<p>Explores the interrelated processes and associated skills by which students create digital solutions. Students engage in the four processes of analysing, designing, developing and evaluating. Creating Digital Solutions requires skills in using digital systems and computational, design and systems thinking, and interacting safely by using appropriate technical and social protocols.</p>

Digital Systems

FREE SOFTWARE



networks

Data and Information

data integrity

representing data

projects

Creating Digital Solutions

analysing

designing

developing

evaluating

Digital Systems

Foundation – Level 2	Levels 3 and 4	Levels 5 and 6
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

Digital Systems

Levels 5 and 6	Levels 7 and 8	Levels 9 and 10
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

Digital Systems

Focuses on:

hardware

software

network components of **digital systems**.

Foundation to Level 2

Identification of hardware and software components

Levels 3 & 4

Exploration of digital systems with peripheral devices (eg printer, camera)

Transmission of different data

Levels 5 & 6

Examining main components of digital systems (eg CPU, keyboards, storage - cloud)

Investigating how data are transmitted between components within a system

How hardware and software interact to form networks.

Digital Systems

Focuses on:

hardware

software

network components of **digital systems**.

Levels 7 & 8

Investigating the transmission of data in networks

Wired, wireless and mobile networks

Levels 9 & 10

Role of software and hardware in managing data in a network

Securing data in a network

Accessing data

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 problems	Acquire, store and validate different types of data and use a range of software to interpret and visualise data to create information
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

Data and Information

Levels 5 and 6	Levels 7 and 8	Levels 9 and 10
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
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
	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
Plan, create and communicate ideas, information and online collaborative projects, applying agreed ethical, social and technical protocols	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

Data and Information

Focuses on:

- properties of data
- how they are collected, stored and represented
- how they are interpreted in context to produce information.

Foundation to Level 2

Collecting data and displaying it digitally

Levels 3 & 4

- Multiple representations of data
- Creating information by applying context to data
- Using data to solve problems

Levels 5 & 6

- Acquire, store and validate data
- Interpret and visualise data

Links to other curriculum areas:

- Science
- Mathematics
- Geography

Data and Information

Focuses on:

properties of data

how they are collected, stored and represented

how they are interpreted in context to produce information.

Levels 7 & 8

How sound, text and images are represented

Creating a collaborative environment

Levels 9 & 10

Compression of data

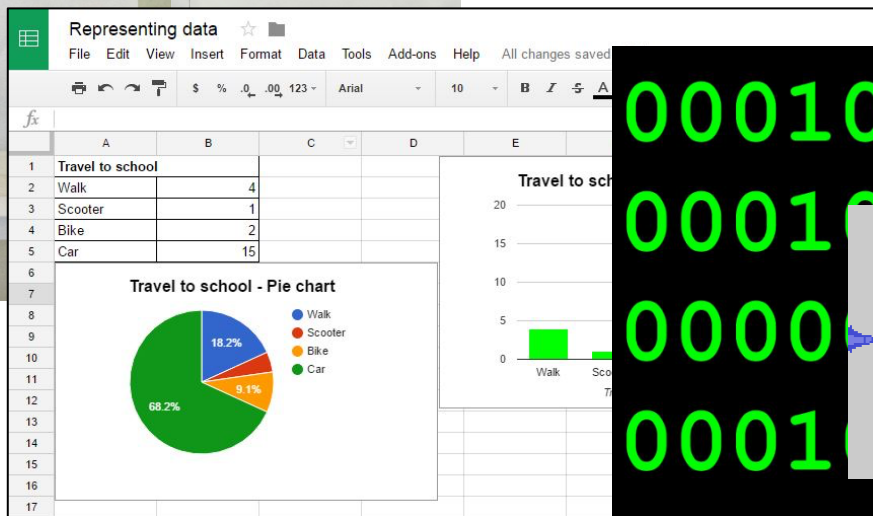
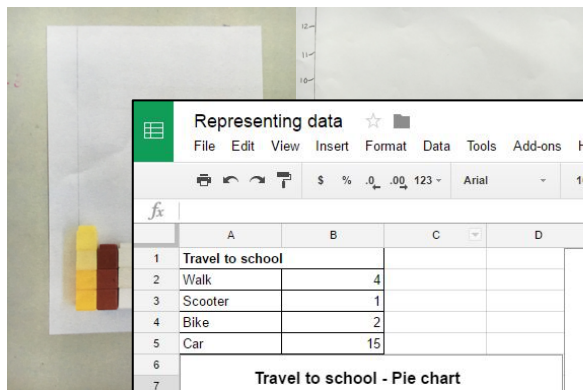
Qualitative and quantitative data

Visualising complex problems

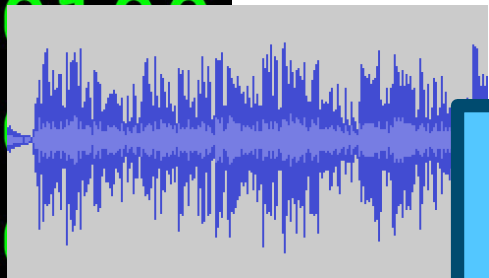
Links to other curriculum areas:

- Science
- Mathematics
- Geography

Example: Representing Data



00010011
00010100
00000100
00010100
00000101



MP3 vs WAV
JPG vs TIFF

Image credits: Steve Allen & Eduard Schaepman



Creating Digital Solutions

Foundation – Level 2	Levels 3 and 4	Levels 5 and 6
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
		Design a user interface for a digital system, generating and considering alternative design ideas
		Design, modify and follow simple algorithms represented diagrammatically and in English, involving sequences of steps, branching, and iteration
	Develop simple solutions as visual programs	Develop digital solutions as simple visual programs
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

Creating Digital Solutions

Levels 5 and 6	Levels 7 and 8	Levels 9 and 10
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 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
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

Creating Digital Solutions

Explores processes and skills by which students create **digital solutions**

Four stages:

Analysing
Designing
Developing
Evaluating



**Problem Solving
Methodology**

Creating Digital Solutions requires:

skills in using digital systems
different ways of thinking (computational, design and systems thinking)
interacting safely by using appropriate technical and social protocols.

Links to other curriculum areas:

Mathematics, The Arts, Design and Technologies.

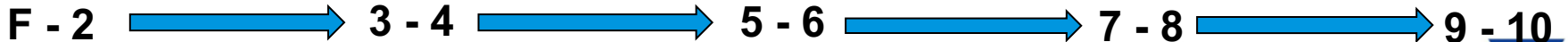
Example: Creating an algorithm

```
name = input("What is your name?")  
print("Hello " + name)  
print("The Code, it's calling to you.")
```

Object Oriented

C++
Java

Image credits: Steve Allen & Eduard Schaezman



Content Descriptions & Achievement Standards

Scope and Sequence F-10

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 Collect, explore and sort and present the data creatively Independently and with others and information using information these with known people	Recognise different types of data and explore how they are used	Examine how whole numbers are used as the basis for data representation	Investigate how digital systems represent text, image and sound	Analyse simple compression of data and how content data is stored and validated from a range of sources, requirements for data storage, entities stored data, interactive solutions for data, taking into account data storage capabilities
Creating Digital Solutions Follow, describe and represent decisions (algorithms) needed to solve a problem	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	Design the user experience of a digital system, generating alternative designs against criteria including functionality, accessibility, usability and aesthetics Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases Develop modular programs, applying selected algorithms and data structures including using an object-oriented programming language 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
By the end of Level 2, students identify how common information systems meet common personal, school or community needs	By the end of Level 4, students describe how common information systems meet common personal, school or community needs	By the end of Level 6, students explain the functions of common information systems that meet current and future community needs	By the end of Level 8, students design and develop programs with user interfaces involving branching, iteration and functions using a general-purpose programming language	By the end of Level 10, students explain the control and data flow in a program, and the role of hardware and software, and the impact of digital systems on society By the end of Level 10, students explain the control and data flow in a program, and the role of hardware and software, and the impact of digital systems on society By the end of Level 10, students explain the control and data flow in a program, and the role of hardware and software, and the impact of digital systems on society
<h2>Content Descriptions</h2> <h3>What teachers teach!</h3>				
<h2>Achievement Standards</h2> <h3>What students are assessed against</h3>				

Achievement Standards and Content Descriptions

Standard	Levels 3 and 4 Achievement Standard	Levels
Common uses.	By the end of Level 4, students describe how a range of digital systems and their peripheral devices can be used for different 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.
Simple and familiar	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 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.
Using a range of digital systems and information technologies.	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.	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 3 and 4 Content Descriptions	Levels
Digital Systems	Digital Systems
Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (VCDTDS019)	Examine different types of digital systems and their peripheral devices for different purposes, and transmit different types of data (VCDTDS019)
Data and Information	Data and Information
Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)	Examine 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)	Acquire, use 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)	Plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI022)

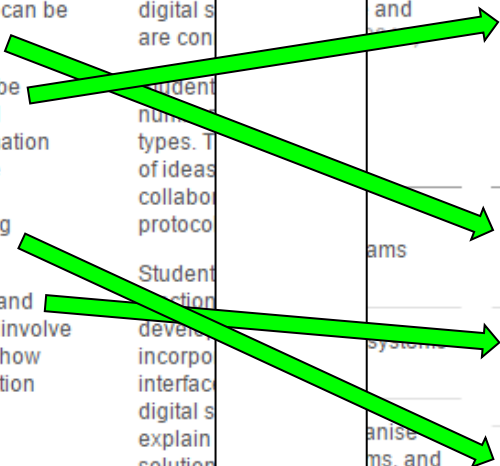
Achievement Standards and Content Descriptions

Standard	Levels 3 and 4 Achievement Standard	Levels
Common purposes.	By the end of Level 4, students describe how a range of digital systems and their peripheral services can be used for different purposes.	By the end of Level 4, students describe how a range of digital systems and their peripheral services can be used for different purposes.
Simple and familiar	Students explain how different data sets can be represented in different ways. They collect and communicate 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 explain how different data sets can be represented in different ways. They collect and communicate 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.
Using a range of digital systems and information systems.	Students create 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.	Students create 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 3 and 4 Content Descriptions	Levels
Digital Systems	Digital Systems
Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data (VCDTDS019)	Examine digital systems together (VCDTDS019)
Data and Information	Data and Information
Recognise different types of data and explore how the same data can be represented in different ways (VCDTDI020)	Examine data for representation (VCDTDI020)
Collect, access and present different types of data using simple software to create information and solve problems (VCDTDI021)	Acquire and use a range of digital systems 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)	Plan, create and communicate ideas and information safely, applying agreed ethical and social protocols (VCDTDI022)

Achievement Standard

Content Descriptions



Level D (students with disabilities)

Level D Description

In Level D, students are building their independence and participating cooperatively in group learning activities. They combine and sequence key words and images to communicate personal interest...

Foundation to Level 2

Foundation to Level 2 Description

In Foundation to Level 2, students are introduced to common digital systems and patterns that exist within data they collect. Students organise, manipulate and present this data, including numerical...

Levels 3 and 4

Levels 3 and 4 Description

In Levels 3 and 4, students explore digital systems in terms of their components and peripheral devices such as digital microscopes, cameras and interactive whiteboards. They collect, manipulate...

Digital Technologies / Levels 3 and 4 / Digital Systems

Content description

Explore a range of digital systems with peripheral devices for different purposes, and transmit different types of data

Elaborations

- using different peripheral devices to display information to others, for example using a mobile device, interactive whiteboard or a data projector to present information
- using specific peripheral devices to capture different types of data, for example using a digital microscope to capture images of living and non-living things
- experimenting with different types of digital system components and peripheral devices to perform input, output and storage functions, for example, a keyboard, stylus, touch screen, switch scan device or joystick to input instructions; a monitor, printer or tablet to display information; or a USB flash drive and external hard drive as storage peripheral devices
- recognising that images and music can be transferred from a mobile device to a computer, for example using a cable to connect a camera and computer to upload images for a photo story

Code

VCDTDS019

Creating Digital Solutions

Follow and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (VCDTCD012)

Creating Digital Solutions

Follow, describe and represent a sequence of steps and decisions (algorithms) needed to solve simple problems (VCDTCD017)

Creating Digital Solutions

Define simple problems, and describe and follow a sequence of steps and decisions involving branching and user input (algorithms) needed to solve them (VCDTCD023)

Glossary

The screenshot shows the Victorian Curriculum Foundation-10 website. The header includes the logo and name 'Victorian Curriculum Foundation-10' on the left and 'VICTORIAN CURRICULUM AND ASSESSMENT AUTHORITY' on the right. A navigation bar contains 'Home', 'Overview', 'Curriculum', and 'Levels'. A search bar is present on the right. The main content area is titled 'Digital Technologies' and has sub-sections for 'Introduction' and 'Curriculum'. A sidebar on the left lists navigation options: 'Rationale and Aims', 'Structure', 'Learning in Digital Technologies', 'Scope and Sequence', 'Resources', and 'Glossary'. The 'Glossary' link is circled in red. The main content area displays the 'Rationale and Aims' section, including a 'Print this page' link and three paragraphs of text.

Victorian Curriculum
Foundation-10

VICTORIAN CURRICULUM
AND ASSESSMENT AUTHORITY

Home Overview **Curriculum** Levels Download

Digital Technologies

Introduction Curriculum

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.

Key Concepts

Key Concepts

- **Digital systems (A)**

- Hiding details not directly relevant, allows for solutions to be transferred across contexts **(1)**

- **Data collection, representation and interpretation (B)**

- Creating information and utilising in different ways to extract meaning **(2)**

- **Interactions and impacts (C)**

- Sequential and detailed instructions, leads to developing coded solutions **(3)**

- **Specification, algorithms and development (D)**

- Connected hardware, software and networks, and methods of communication **(4)**

- **Abstraction (E)**

- How people actually interact with tech, and effect on society and environment **(5)**

Key Concepts - Matched

- Abstraction

- Hiding details not directly relevant, allows for solutions to be transferred across contexts

- Data collection, representation and interpretation

- Creating information and utilising in different ways to extract meaning

- Specification, algorithms and development

- Sequential and detailed instructions, leads to developing coded solutions

- Digital systems

- Connected hardware, software and networks, and methods of communication

- Interactions and impacts

- How people actually interact with tech, and effect on society and environment

Resources

Useful Resources

Victorian Curriculum website (<http://victoriancurriculum.vcaa.vic.edu.au/>)

VCAA DigiTech resources (<http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/digitech/digitech.aspx>)

VCAA Professional learning (<http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/viccurr-proflearn.aspx>)

ACARA Work Samples (<http://resources.australiancurriculum.edu.au/>)

Digital Technologies Hub (Education Services Australia)
(<https://www.digitaltechnologieshub.edu.au/>)

Useful Resources

DigiPubs (DET) (<http://www.digipubs.vic.edu.au/>)

CS Unplugged (University of Canterbury, NZ) (<http://csunplugged.org>)

CSER MOOC (University of Adelaide) (<http://csermoocs.adelaide.edu.au/moocs/>)

Digital Learning News (DET) (<http://diglearning.global2.vic.edu.au/>)

Curriculum Mapping Templates (VCAA)

(<http://www.vcaa.vic.edu.au/Pages/foundation10/viccurriculum/digitech/digitechcm.t.aspx>)

Useful Resources

Computational Thinking Course (Google)

(<https://computationalthinkingcourse.withgoogle.com/course>)

Scratch examples and learning community (MIT) (<http://scratch.mit.edu>)

Code.org (incorporating Code Studio) (<http://code.org>)

Grok Learning online learning for teachers and students (<http://groklearning.com>)

Makers' Space (DET) (<http://makers.global2.vic.edu.au/>)

DET has equipment that can be borrowed by schools, via this site.

Foundation for Young Australians (<http://www.fya.org.au>)

Questions?

Link to resource list

<http://bit.ly/digitechdeck>

Thankyou

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