Curriculum planning for Digital Technologies F–6

Teaching and assessing in the
Digital Technologies Curriculum

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Background to assessing the Digital Technologies Curriculum

– Assessing student work

– Achievement standards

– Connections between the content descriptions and the achievement standards

Starting with the curriculum

- Identify and understand what you are going to teach
- Identify how much time you will need to teach the content descriptions
- Plan what you will use to assess students and when you will assess their learning

Background to teaching the Digital Technologies Curriculum F–6

Planning a lesson

- Start with the Digital Technologies Curriculum.

- Determine what needs to be taught using the content descriptions.

- Consider your students' current and next stages of learning.

- Develop activities for teaching and identify any potential areas of difficulty.

- Reflect on student learning.

Scope and sequence F–6

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

Content descriptions

Foundation to Level 2 Content Descriptions

Digital Systems

Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013)

Elaborations

Digital Technologies / Foundation to Level 2 / Digital Systems

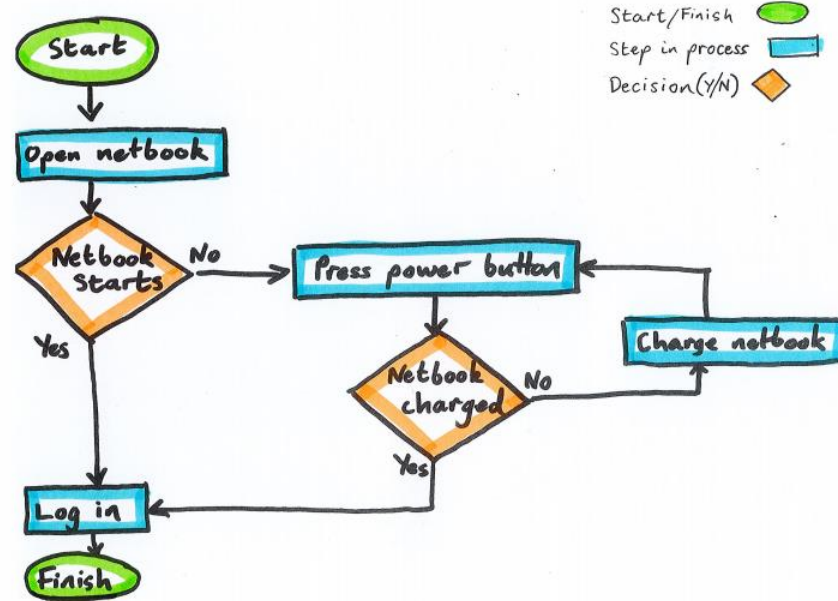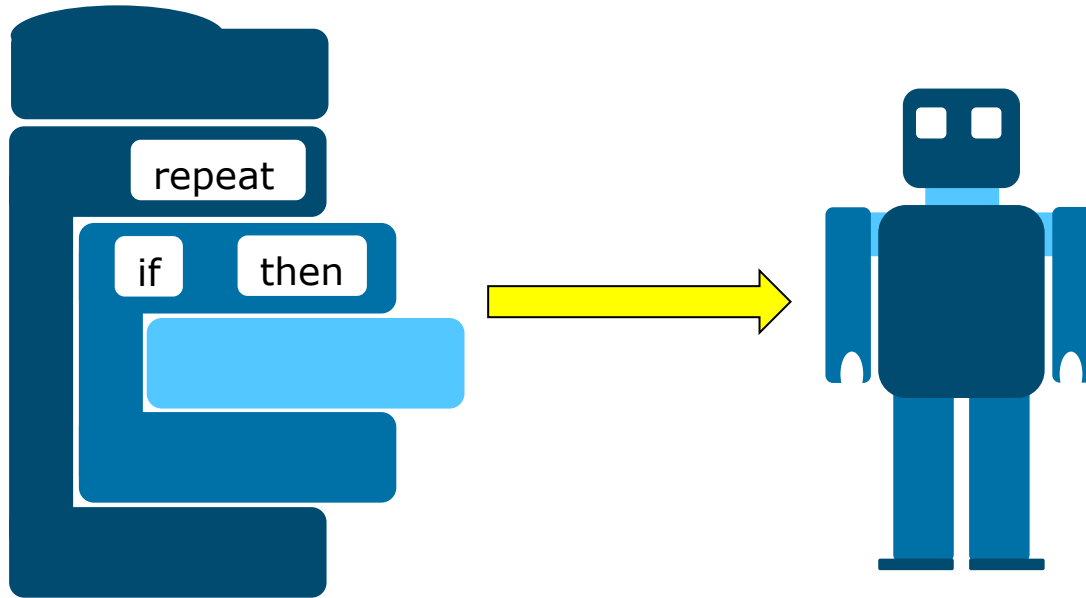| Content description	Elaborations
Identify and explore digital systems (hardware and software components) for a purpose	✗ • playing with and using different digital systems for transferring and capturing data, for example using a tablet to take a photograph of a grandparent and recording an interview with them about life in the past
	✓ • exploring and using digital systems for downloading and storing information, for example knowing how to download images from a website and insert them into a document
	✗ • exploring and identifying hardware and software components of digital systems when creating ideas and information, for example experimenting with different ways of providing instructions to games software using a mouse, touch pad, touch screen, keyboard, stylus
	✓ • recognising and using hardware and software components of digital systems and experimenting with their functions, for example playing with interactive toys and robotic devices to determine which ones can work with other devices
	✓ • recognising that a digital system follows instructions or commands, for example instructing robotic toys to perform a function such as a dance movement
	✗ • constructing a model of a real or imaginary digital systems device for use in role-play scenarios and explaining the features of the device to an adult

Code

VCDTDS013

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Unpacking the content descriptions

Digital Technologies: Unpacking the Content Descriptions

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Strand	Digital Systems	Sample activities
Content Description	Identify and explore digital systems (hardware and software components) for a purpose	• identifying common digital systems in the classroom and their purpose, for example laptops, tablets, interactive whiteboards • identifying common digital systems at home and their purpose, for example smart phones, desktop computers, tablets and smart TVs • linking identified digital systems with an identified purpose, for example using a laptop to word process a story or using a tablet to take photographs • identifying that inputs are a way of entering data into a digital system, for example keyboard, mouse, touch pad, touch screen, buttons on a robotic device • identifying that outputs are a way for a digital system to represent data to the user, for example a monitor for displaying information and speakers to provide sound • using a digital system to take photographs and inserting them into a document • creating a multimedia solution that includes text, images, audio and video
Related extract from Achievement Standard	Students identify how common digital systems are used to meet specific purposes.	
Suggested focus	Lessons may focus on: • types of common digital systems and their purpose • basic functions of inputs and outputs • using digital systems to download and store images • learning to create an audio recording while exploring hardware and software • learning to create a video recording while exploring hardware and software • learning to create a photo story using photos and music	

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Plugged and unplugged activities

Plugged and unplugged activities

Unplugged activities

Strand and content descriptions	Unplugged activities
Digital Systems	
Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013)	• Identify common digital systems and describe their purpose, for example smart phones, desktop computers, tablets and smart TVs. Draw a diagram of these digital systems, label them and give a brief description of their purpose. • Identify and describe a range of hardware and software components for a desktop or laptop computer. Hardware components could include hard disk drives and printers. Software components could include operating systems and word processing software.

Plugged activities

Strand and content descriptions	Plugged activities
Digital Systems	
Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013)	• Use a tablet device, such as an iPad, to take photographs around the school or home and insert them into a Word or Google Docs document. • Using PowerPoint or Google Slides, create a photo story that includes text, images and audio.

Unit plan ideas

Strand and content description	
Digital Systems	
Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013)	
Ideas for delivery of unit	
The unit may have a 1 × 60-minute lesson each week over four weeks.	
Week 1: **What is a** **computer?**	• Introduce students to the components that make up a computer or digital system. • Students draw a diagram of a known digital system from memory and label as many parts as they can.
Week 2: **Hardware and** **software** **components**	• Introduce students to the difference between hardware and software components. • Identify and explore the different hardware and software components of a digital system. • Develop a list of hardware components, software applications (apps) and operating systems.
Week 3: **Digital system** **detective**	• Students look around their home or school and record the different types of digital systems they can find, for example laptops, tablet devices, desktop computers, smartphones, printers, robotic devices. • Students choose two different digital devices and complete a Venn diagram listing the similarities and differences between their chosen digital devices. Two different devices could be a laptop and a tablet device.
Week 4: **Assessment** **activity**	• Refer to the assessment activities below.
Ideas for assessment activities	
Pre-test	A simple written test on some basic terminology (including hardware and software components)
Written test	A written test on terminology and identifying hardware and software components
Worksheet	A worksheet that enables students to identify and describe a range of hardware and software components for a number of digital devices
Create an e-book	An e-book in which students draw and label the hardware and software components of a digital system
Link to curriculum area plan	
DigiTech P–2 Curriculum Area Plan Sample Program 1	
www.vcaa.vic.edu.au/curriculum/foundation-10/resources/digital-technologies/Pages/Help-me-find-a-teaching-resource.aspx	

Background to assessing the Digital Technologies Curriculum F–6

Assessing student work

- Develop criteria based on the curriculum
- Consider the process of developing skills as part of formative assessment
- Know what success looks like

Achievement standards

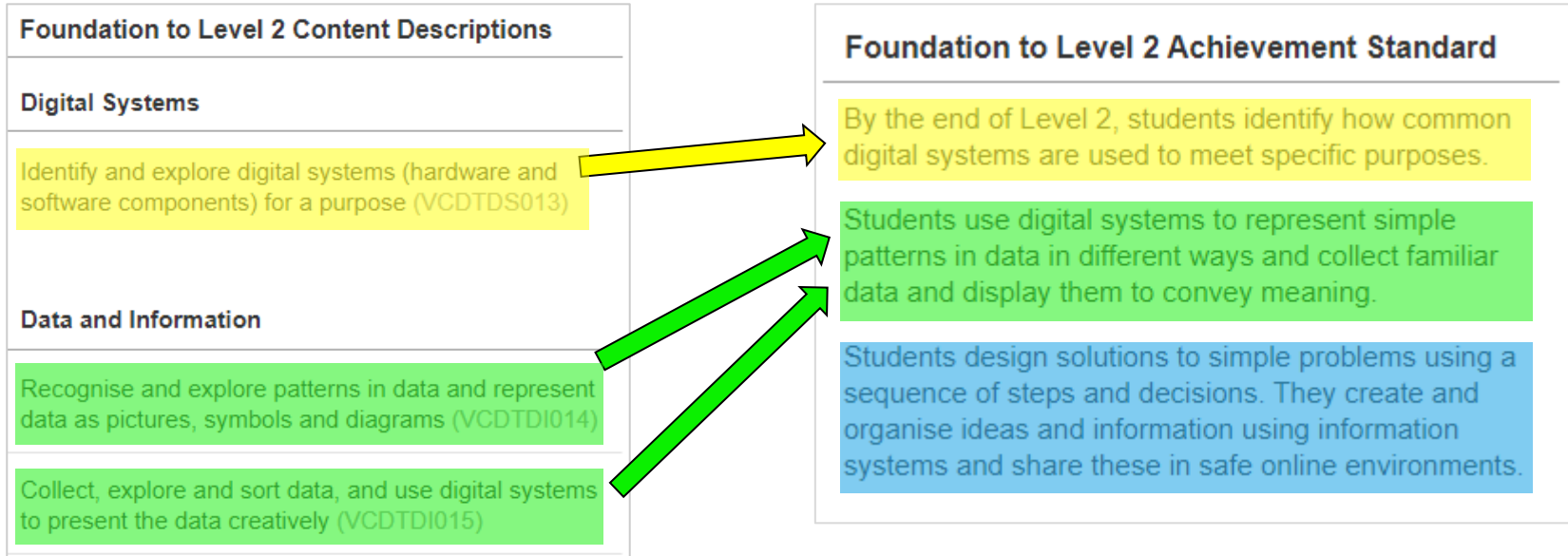| Achievement Standard		
By the end of Level 2, students identify how common digital systems are used to meet specific purposes. Students use digital systems to represent simple patterns in data in different ways and collect familiar data and display them to convey meaning. Students design solutions 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.

Making connections between content descriptions and achievement standards

Foundation to Level 2 Content Descriptions

Digital Systems

Identify and explore digital systems (hardware and software components) for a purpose (VCDTDS013)

Data and Information

Recognise and explore patterns in data and represent data as pictures, symbols and diagrams (VCDTDI014)

Collect, explore and sort data, and use digital systems to present the data creatively (VCDTDI015)

Foundation to Level 2 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.

Assessing student work

- Relate the assessment tasks to the content taught.
- Develop a shared understanding about what 'At achievement standard' looks like.
- Use language that is familiar to students.
- Identify the next point of learning.

Review

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- Scope and sequence F–6
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- Unit plan ideas

Background to assessing the Digital Technologies Curriculum

- Assessing student work
- Achievement standards
- Connections between the content descriptions and the achievement standards

Thank you

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