

Australian Curriculum: Digital Technologies — Year 10

By the end of Year 10, students explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users. They explain simple data compression, and why content data are separated from presentation. Students plan and manage digital projects using an iterative approach. They define and decompose complex problems in terms of functional and non-functional requirements.

Students design and evaluate user experiences and algorithms. They design and implement modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities. They take account of privacy and security requirements when selecting and validating data. Students test and predict results and implement digital solutions. They evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise. They share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects.

CURRICULUM	YEAR 10			
	SEMESTER 1		SEMESTER 2	
	Unit 3	Unit 4	Unit 5	Unit 6
Unit name	Algorithmic and UX basics	Desktop Application – Database and GUI	PyGame – Game Design	Capture the Flag – Competitive coding
Unit description	Students investigate basic programming logic using Python syntax. Students will examine and practice concepts such as creating and using variables, iteration, looping and branching. Students will design and evaluate user experiences.	Students will investigate Structured Query Language (SQL) as a means to communicate with a database. Students will use a Python code library to create a Graphical User Interface (GUI). Combining Python skills from Unit 3 with SQL skills from Unit 4 will allow students to create a digital solution in the form of a desktop application as a response to stimulus.	Students will use a Python code library (PyGame) to create a game.	Students will modify bots in a premade game of Capture the flag. Students will have to plan the logic of their bots to successfully compete against each other to test the effectiveness of their code.

ASSESSMENT		YEAR 10			
		SEMESTER 1		SEMESTER 2	
		Summative assessment task 3	Summative assessment task 4	Summative assessment task 5	Summative assessment task 6
Range and balance of summative assessment conventions	Technique	Project	Project	Project	Project
	Type of text	Long Response	Digital Solution – desktop application as a response to stimulus	Game	Game
	Mode	Written component with mock-up	Coding GUI and Database connection	Coding with written component	Coding with written component
	Conditions	written responses including graphical representations 300–400 words 4 weeks to complete	written responses including graphical representations 300–400 words 6 weeks to complete Digital Solution with written component	written responses including graphical representations 300–400 words 5 weeks to complete task	written responses including graphical representations 300–400 words 5 weeks to complete task
Aspects of the achievement standard					
explain the control and management of networked digital systems and the security implications of the interaction between hardware, software and users					
explain simple data compression, and why content data are separated from presentation					
plan and manage digital projects using an iterative approach					
define and decompose complex problems in terms of functional and non-functional requirements					
design and evaluate user experiences and algorithms					
design and implement modular programs, including an object-oriented program, using algorithms and data structures involving modular functions that reflect the relationships of real-world data and data entities					
take account of privacy and security requirements when selecting and validating data					
test and predict results and implement digital solutions					
evaluate information systems and their solutions in terms of risk, sustainability and potential for innovation and enterprise					
share and collaborate online, establishing protocols for the use, transmission and maintenance of data and projects					

Shaded cells indicate opportunities that summative assessments provide for students to demonstrate evidence against all aspects of the achievement standard

