# Year 10 Digital Technologies

## Achievement

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.

## Assessment Criteria

An overall level of achievement in this subject is determined by the teacher's on-balance judgment of the evidence presented in students' summative assessment across the following:

- Knowledge and Understanding – digital systems and representation of data
- Processes and Production Skills – collecting, managing and creating data, defining, implementing, evaluating, collaborating and managing

## Delivery (mode, time requirements, lessons)

Students are expected to undertake independent study on their program to complete lessons, tasks and assessment in accordance with the Work Rate Calendar. Students also have access to a one hour scheduled lesson and a one hour tutorial each week. Lessons are delivered via the learning management system and teleconferencing.

## Student Requirements

Computer/Laptop, Software, reliable internet connection with ample download, Microsoft Office. Due to the nature of this course there is no printed or disc copy. Students will be required to sign up to some online resources.

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| | | Units and Learning Experiences, Summative Assessment, Criteria Assessed, Approximate timing/due date of summative assessment |
|---|---|---|
| Semester 1 | Term 1 | **Big Data and Privacy**<br>The data-rich world we live in introduces many complex questions related to public policy, law, ethics, and societal impact. The goals of this unit are to develop a well-rounded and balance view about data in the world, including the positive and negative effects of it, and to understand the basics of how and why modern encryption works. |
| | | **Summative assessment, criteria assessed, approximate timing/due date:**<br>• Case study |
| | Term 2 | **Introduction to Programming**<br>This unit introduces the foundational concepts of computer programming, which unlocks the ability to make rich, interactive apps. This course uses Python as the programming language, and the concepts learned in these lessons span all programming languages and tools. |
| | | **Summative assessment, criteria assessed, approximate timing/due date:**<br>• Portfolio |
| Semester 2 | Term 3 | **Building Applications**<br>This unit continues the introduction of foundational concepts of computer programming, which unlocks the ability to make rich, interactive apps. This course uses JavaScript as the programming language, and App Lab as the programming environment to build apps, but the concepts learned in these lessons span all programming languages and tools. |
| | | **Summative assessment, criteria assessed, approximate timing/due date:**<br>• A culminating project that brings together processing arrays, functions with return values, and handling keystroke events. The app allows a user to draw an image while recording in an array every single x,y location the mouse passes over on the canvas. By processing this array in different ways, the image can be redrawn in different styles, like random, spray paint, and sketching. |
| | Term 4 | **Working with Data**<br>In this unit, students learn how data analysis helps turn raw data into useful information about the world. Students will learn how to use data visualization to find patterns inside of data sets and learn how this data analysis process is being used in contexts like open data or machine learning to help make decisions or learn about our world.<br><br>In the unit project, students will analyse a dataset and present their findings.. |
| | | **Summative assessment, criteria assessed, approximate timing/due date:**<br>• Project folio of work |

**Disclaimer** All of the above information is accurate at the time of publication