# COLLINSVILLE STATE HIGH SCHOOL
## Digital Technologies Education Plan
## 2022

| | | Term 1 | Term 2 | Term 3 | Term 4 |
|---|---|---|---|---|---|
| Design Technologies | 7 | **Unit 1: Get serious about games**<br><br>In this unit students will apply computational and systems thinking to evaluate educational information systems and create digital solutions using a general purpose programming language.<br><br>Students will apply a range of skills and processes in the production of digital solutions, which include a model of a real-world system and a game that will educate their peers. They will:<br><br>• analyse data to model a real life object or event, with consideration to gaming mechanics<br>• investigate how data including text, images and sound are represented in binary, and how this impacts game design<br>• define and decompose real-world problems, considering functional requirements and technical, social and usability constraints<br>• investigate how game mechanics influence user experience and apply those principles to the user experience design<br>• use algorithms including flow charts, storyboards and pseudocode to design their solution<br>• test algorithms for accuracy<br>• evaluate how well needs are met by digital solutions and information systems, and evaluate them against criteria including innovation, future risks and sustainability<br>• plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account<br>• explore emerging technologies. | | | |

**Unit 2: D.A.T.A (Digital Analysis Troubleshooting Agency)**

In this unit students will transform data into information, and explore and analyse the properties and components of networked systems and data transmission. Students will 'join' a fictional agency to create a range of digital solutions.

Students will apply a range of skills and processes when creating digital solutions. They will:

- explore the reliability and speed of data transmission through different networks (wired, wireless and mobile), examining the impacts of specifications on performance
- explore different communication protocols for transmitting data in networks
- create a model of a network for a client
- acquire data from a range of sources and explore techniques for efficient, targeted online data collection, including querying databases
- evaluate data accuracy, authenticity and timeliness
- analyse and manage data using spreadsheets
- decompose real-world problems considering functional requirements, and usability, economic, social, environmental and technical constraints
- learn basic HTML to modify a website to improve user experience, and compare and evaluate web designs
- evaluate how student solutions and existing information systems meet needs and take account of sustainability (for example, e-waste).

| 9 | **Unit 1: There's a website for that!**

In this unit students will use mark-up language and style sheets to design and create a prototype data-driven web app to solve an identified problem.

Students will apply a range of skills and processes when creating digital solutions.  They will:
- investigate the secure transmission of data across internetworks
- develop skills for collecting, managing and analysing appropriate data from a range of sources to meet client requirements, including considering privacy and security requirements
- apply computational thinking skills including abstraction and specification to address complex problems
- interview stakeholders to identify needs that can be addressed by a data-driven web app
- design the user experience of a solution for a data-driven web app using storyboards and mock-ups
- use diagrams (flowcharts) and structured English (pseudocode) to design algorithms and validate them through tracing and test cases
- apply an object-oriented programming language to implement interactive features
- plan and manage a client-based project using the agile software development cycle
- investigate indicators of economic success for their apps considering safety and sustainability.


**Unit 2: Robot Olympics**

In this unit students will used programming application to code robotic movements as well as coding language.

Students will apply a range of skills and processes when creating digital solutions.  They will:
- investigate the requirements of robotics movements
- apply computational thinking skills including abstraction and specification to address complex problems
- design the user experience of a solution
- use diagrams (flowcharts) and structured English (pseudocode) to design algorithms and validate them through tracing and test cases
- apply an object-oriented programming language to implement interactive features |

# Balance and coverage of general capabilities and cross-curriculum priorities across 7–9

| Key | Literacy · Numeracy · ICT capability · Critical and creative thinking · Ethical behaviour · Personal and social capability · Intercultural understanding |
| --- | --- |
|  | Aboriginal and Torres Strait Islander histories and cultures · Asia and Australia's engagement with Asia · Sustainability |

| | | Term 1 | | | | | | | | | | | Term 2 | | | | | | | | | | | Term 3 | | | | | | | | | | | Term 4 | | | | | | | | | |
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| | | Lit | Num | ICT | C&C | Eth | P&S | IC | ATSI | | Asia | Sus | Lit | Num | ICT | C&C | Eth | P&S | IC | ATSI | | Asia | Sus | Lit | Num | ICT | C&C | Eth | P&S | IC | ATSI | | Asia | Sus | Lit | Num | ICT | C&C | Eth | P&S | IC | ATSI | Asia | Sus |
| Design Technol | 7 | X | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8 | | | | | | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 9 | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | | | | | X | X | X | X | X | X | X | | | |

# Whole school assessment plan: 7–10 overview

| | | Term 1 | Term 2 | Term 3 | Term 4 |
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| | 7 | **Unit 1: Get serious about games**<br><br>*Portfolio*<br><br>Students will plan and manage the development of a game. Assessment will gather evidence of the student's ability to:<br><br>• explain how image and audio data can be represented and presented in a digital system<br>• define problems with functional requirements and constraints<br>• evaluate needs, innovation and sustainability of solutions<br>• design user experiences and algorithms (flowchart and pseudocode), incorporating branching and iterations<br>• implement a serious game using a general purpose programming language<br>• plan and manage a project<br>• develop and apply protocols to communicate and collaborate online, taking safety and social contexts into account. | | | |
| | 8 | | **Unit 2: D.A.T.A (Digital Analysis Troubleshooting Agency)**<br><br>*Portfolio*<br><br>Students will produce digital solutions that address client needs in three scenarios. Students will:<br><br>• distinguish between different types of networks and their defined purposes<br>• explain how audio data can be represented, secured and presented in a digital system<br>• analyse and evaluate data from a range of sources to model and create solutions<br>• define and decompose problems in terms of functional requirements and constraints<br>• evaluate how existing information systems and their solutions meet needs, are innovative, and take account of future risks and sustainability<br>• plan and create a digital project which incorporates interactive information<br>• design the user experience of a digital system, and test and modify digital solutions. | | |

| 9 | | Unit 1: There's a website for that! |
|---|---|---|

**Unit 1: There's a website for that!**

*Portfolio*

Assessment of student learning will be gathered from completing project work. Students will create a data-driven web based solution. They will:

- explain the control and management of networked digital systems
- explain simple data compression and why content data are separated from presentation
- take account of privacy and security requirements
- define and decompose a complex problem
- evaluate their solutions
- design user experiences
- integrate modules to implement a digital solution using data structures
- test design and solution
- plan and manage digital projects
- share and collaborate online.

**Unit 2: Robot Olympics**

*Portfolio*

Assessment

- define solutions
- define and decompose a complex problem
- evaluate their solutions
- design user experiences
- test design and solution
- evaluate solutions

## Timing of assessment across 7–9 by learning area

^ School reporting deadlines  Systemic assessment  School-based assessment  ¥ The assessment provides an opportunity for planned consistency of teacher judgments activities

| | | Term 1 | | | | | | | | | | Term 2 | | | | | | | | | | Term 3 | | | | | | | | | | Term 4 | | | | | | | | | |
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| Week | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| | 7 | PAT | | | | | | | | ¥ | ^ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8 | PAT | | | | | | | | | | | | | | | | | | ¥ | ^ | | | | | | | | | | | | | | | | | | | | |
| | 9 | PAT | | | | | | | | | | | | | | | | | | | | | | | | | | | | ¥ | ^ | | | | | | | | | ¥ | ^ |