

## Shirley Smith High School Vision and Values

### *Grow with us.*

*At Shirley Smith High School, teaching and learning is authentic, rigorous, and designed to maximise student agency. We align deep disciplinary knowledge and excellent pedagogical practice to ensure our learners are empowered to find their purpose, fulfil their potential, and shape their own futures.*

Students at Shirley Smith High School are:

### **Curious**

*brave and open minded inquirers with a desire to know and understand*

### **Connected**

*inclusive young people connected to each other, connected to their community and connected to Country*

### **Learners**

*creative empowered learners with boundless potential for their futures and the future of our planet*

## Subject Details

<b>Subject/s:</b>	STEM 3D	<b>Learning Area:</b>	Design & Technology, Digital Technology
<b>Teacher/s:</b>	Claire Pullan and Ben Hobbs	<b>Learning Period:</b>	Semester 1, 2026

## Engagement in Learning

In order to facilitate active engagement in their learning, students are expected to:

- Arrive prepared for their lessons, equipped with a fully charged chromebook, a notebook, a pen or pencil, and any other subject-specific materials that may be necessary.
- Independently make an effort to retrieve and complete any missed assignments or coursework due to absences or extracurricular activities during their own time.
- Embrace the principles of the school's Yindyamarra wellbeing framework by treading lightly. This involves taking moments to pause, authentically connecting with others, engaging in deep listening, thoughtful reflection, and considering the impact of their actions on others.

## Learning and Assessment Policies

Please see the school website for policies regarding the submission of late work, extension requests for assessment tasks, and plagiarism and academic integrity.

## Description of Learning

### **Unit overview:**

In the STEM 3D elective, students engage in an integrated design and digital technologies program that combines 3D modelling, computational thinking and problem solving. Using SketchUp as a core design tool, students apply design thinking processes to investigate authentic problems, identify user needs and develop functional, sustainable solutions. They create and refine digital prototypes, evaluate alternative ideas against user stories and explicit design criteria, and justify decisions using technical language and graphical representation techniques. Sustainability is embedded throughout the design process, with students considering material selection, environmental impact and product lifespan when developing their solutions.

Alongside 3D design, students build algorithmic thinking and programming capability through structured problem-solving booklets, Grok activities and applied coding projects. They decompose real-world problems, design and trace algorithms, and implement solutions in a general-purpose programming language. Across CAD and programming projects, students select and use digital tools efficiently and responsibly to create, manage and share content, while collaborating with peers to refine ideas. Through iterative cycles of designing, testing, evaluating and modifying, students strengthen creativity, resilience and real-world STEM skills, preparing them for further study in engineering, digital technologies and innovative design fields.

**Unit learning outcomes:**

By the end of this unit, students will demonstrate a level of achievement for the following standards:

- Develops and modifies creative digital solutions, decomposes real-world problems, and evaluates alternative solutions against user stories and design criteria
- Designs and traces algorithms and implements them in a general-purpose programming language
- Selects and uses a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects
- Creates and adapts design ideas, processes and solutions, and justifies their decisions against developed design criteria that include sustainability
- Communicates design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools

**Assessment:**

<b>Task</b>	<b>Approximate Due Date</b>
- Problem Solving Booklet	Week 4
- Technical Drawing Booklet	Week 7
- CAD Project	Week 11
- Programming Project	Week 14
- Grok Learning	Week 19
- Class work	Ongoing

**Learning Experiences**

Throughout the unit, students may have the opportunity to engage in the following learning experiences:

**Incursions/Excursions** - N/A