

## 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:</b>	Science	<b>Learning Area:</b>	STEM
<b>Teachers:</b>	Liang Chen, Kurt Halbauer and Cheryl Walker	<b>Learning Period:</b>	Semester One, 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 Yindjamarra 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 Semester One, Year 9 Science explores how systems at both the biological and atomic levels maintain balance and undergo change. Students begin by investigating **homeostasis**, examining how cells, tissues and organs work together to regulate responses to internal and external stimuli. They study negative feedback mechanisms, including the roles of receptors, control centres, effectors, electrical impulses and hormones, and analyse what occurs when these systems fail, leading to conditions such as diabetes or hypothermia. Through interpreting flow diagrams, models and simulations, students learn to represent complex biological processes clearly and accurately. They also conduct research into disease and the immune system, evaluating how scientific understanding informs medical treatments and public health practices, and communicating their findings through structured written reports for specific audiences.

The semester then shifts to the structure and behaviour of matter. Students develop their understanding of atomic structure, exploring how models of the atom have evolved and how the arrangement of protons, neutrons and electrons determines the properties of elements. They investigate radioactive decay, half-life and real-world applications of radioactivity in medicine, industry and dating techniques. Building on this foundation, students examine chemical reactions, using particle models, word equations and balanced chemical equations to demonstrate the law of conservation of mass. Practical investigations form a key component of this unit, with students planning and conducting safe experiments, analysing data, and constructing evidence-based conclusions. Throughout the semester, emphasis is placed on modelling, diagrammatic representation, scientific reasoning and clear communication of scientific ideas.

### Unit learning outcomes:

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

- Explains how body systems provide a coordinated response to stimuli
- Explains observable chemical processes in terms of changes in atomic structure, atomic rearrangement and mass
- Analyses the different ways in which science and society are interconnected
- Plans and conducts safe, reproducible investigations to test or identify relationships and models
- Selects and uses equipment to generate and record replicable data with precision
- Constructs logical arguments based on evidence to support conclusions and evaluate claims
- Selects and uses content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to specific audiences

### Assessment:

Task	Approximate Due Date
- Class Work	Ongoing
- Formative Assessment	Ongoing
- Homeostasis Test	Week 6
- Research Assignment	Week 8
- Disease and Immune System Test	Week 10
- Atomic Structure Test	Week 14
- Chemical Reactions Scientific Report	Week 17
- Chemical Reactions Test	Week 19

### Learning Experiences

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

**Incursions/Excursions** - TBA

**Competitions** - Big Science Competition, 4-15 May