

Physics Units 1 & 2

Unit 1: How is energy useful to society?

In this unit, students examine some of the fundamental ideas and models used by physicists to understand and explain energy. Models used to understand light, thermal energy, radioactivity, nuclear processes and electricity are explored. Students apply these physics ideas to contemporary societal issues: communication, climate change and global warming, medical treatment, electrical home safety and Australian energy needs.

Area of Study 1: How are light and heat explained?

- Model, investigate, and evaluate the wave-like nature of light
- Explore thermal energy
- Study emission and absorption of light by matter

Area of Study 2: How is energy from the nucleus utilised?

- Explain nuclear radiation
- Apply knowledge of radioactive decay
- Evaluate nuclear energy

Area of Study 3: How can electricity be used to transfer energy?

- Investigate and apply basic DC circuit models
- Analyse circuits using mathematical models
- Describe safe and effective electricity use

Unit 2: How does physics help us to understand the world?

In this unit, students explore experiments' role in shaping models and theories. They investigate various phenomena through observation and experimentation, leading to questions and investigations. They study forces in motion and equilibrium, apply physics to societal issues across diverse fields, and conduct scientific investigations drawing on their skills and knowledge.

Area of Study 1: How is motion understood?

- investigate, analyse, mathematically model and apply force, energy and motion.

Area of Study 2: How does physics inform contemporary issues and applications in society?

- investigate and apply physics knowledge to develop and communicate an informed response to a contemporary societal issue or application related to a selected option.

Area of Study 3: How do physicists investigate questions?

- draw an evidence-based conclusion from primary data generated from a student-adapted or student-designed scientific investigation related to a selected physics question.