

Teacher Lesson Guide

Snowy 2.0

The important stuff

This unit was designed for		Total content duration	
Target audience	Year 5-10	Total content duration	65-75 minutes
Curriculum links also for		This unit contains	Duration
Scientific understanding	Year 3-10	Introducing Snowy 2.0	10-15 min
Science as a Human Endeavour	Year 3-10	Snowy 2.0 today	5-10 min
Science Inquiry	Year 3-10	Digital pop-up book	25 min
Detailed curriculum code alignment for ACARA v9 is available in the Curriculum Alignment section of this unit guide.		Virtual tour of Snowy 2.0	25 min
		Check the timing and notes of these activities and find links to all of the individual resources in the Lesson Breakdown section of this unit guide.	

An overview of the lesson

This unit uses Snowy 2.0 as a real-world case study to explore how science, technology and engineering are applied to solve contemporary challenges in Australia's energy system including why Snowy 2.0 is being built, how it works, and how scientific knowledge supports a reliable and sustainable energy future. The introduction to Snowy 2.0 focuses on the problem it is designed to address and the scientific principles behind pumped hydro energy storage. Students examine Snowy 2.0 as it exists today by reviewing updated project information and tracking construction progress, building an understanding of how large-scale scientific and engineering projects evolve over time.

Self-paced inquiry activities, including a digital pop-up book and a virtual tour of Snowy 2.0. Students explore key concepts such as underground construction, water movement, energy storage and system design. Students consider how scientific explanations are used to meet needs and solve problems, and why advances in science and engineering often rely on collaboration and prior knowledge. Older students can analyse how advances in technology enable advances in science, and how societal values and needs influence scientific research and innovation.

Build on this unit by heading to the [Going Underground unit](#) to learn more about the tunnel boring machines that helped us get there.

[Find detail on ideas discussed in this unit](#)

Lesson breakdown

Activity timing and delivery guide

Order	Duration	Activity description	Notes
1	10-15 min	Introducing Snowy 2.0	Watch the introductory video and look at the fact sheet about why Snowy 2.0 is being built
2	5-10 min	Snowy 2.0 today	Watch the new video and check the progress of Snowy 2.0 using the fact sheet
3	25 min	Digital pop-up book	Assign students the knowledge quest activity sheet and allow them to discover the digital pop-up book at their own pace
4	25 min	Virtual tour of Snowy 2.0	Assign students the knowledge quest activity sheet and allow them to discover the virtual tour at their own pace

For this lesson you will need

Teaching resources

Video 1

[Snowy 2.0 - about the pumped hydro project](#)
[Snowy 2.0 - More than tunnels and pipes](#)

Answer keys

[Snowy 2.0 digital pop up book knowledge quest answer key](#)
[Snowy 2.0 virtual tour knowledge quest answer key](#)

Student resources

Activity sheets

[Introduction to Snowy 2.0 Fact Sheet](#)
[Snowy 2.0 by the numbers Fact Sheet](#)
[Snowy 2.0 digital pop up book knowledge quest activity sheet](#)
[Snowy 2.0 virtual tour knowledge quest activity sheet](#)

Online activities

[Snowy 2.0 Digital pop-up book](#)
[Virtual tour of Snowy 2.0](#)

Key themes and ideas

Within this unit, students will explore

- **Purpose and context:** Explore why Snowy 2.0 is being built and the energy challenge it is designed to solve within Australia's changing energy system.
- **Science and engineering in action:** Investigate how pumped hydro energy storage works and how scientific knowledge, technology and collaboration are applied in a large-scale infrastructure project.
- **Inquiry and exploration:** Use digital resources, including a pop-up book and virtual tour, to independently explore key concepts such as water movement, underground construction and system design.
- **Impact and decision-making:** Examine the social, environmental, ethical and economic considerations of Snowy 2.0 and how science informs decisions by individuals, communities and governments.

Curriculum alignment

Years 3 & 4

Science understanding	
Year 3 & 4	
<i>There are no direct year 3 or 4 science understanding curriculum links in this unit</i>	
Science as a human endeavour	
Use and influence of science	AC9S3H02/AC9S4H02 consider how people use scientific explanations to meet a need or solve a problem
Science inquiry	
<i>There are no direct year 3 or 4 science inquiry curriculum links in this unit</i>	

Years 5 & 6

Science understanding	
Year 5 & 6	
<i>There are no direct year 5 or 6 science understanding curriculum links in this unit</i>	
Science as a human endeavour	
Nature and development of science	AC9S5H01/AC9S6H01 examine why advances in science are often the result of collaboration or build on the work of others
Use and influence of science	AC9S5H02/AC9S6H02 investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions
Science inquiry	
<i>There are no direct year 5 or 6 science inquiry curriculum links in this unit</i>	

Years 7 & 8

Science understanding	
Year 7 & 8	
<i>There are no direct year 7 or 8 science understanding curriculum links in this unit</i>	
Science as a human endeavour	
Use and influence of science	AC9S7H03/AC9S8H03 examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations
Science inquiry	
<i>There are no direct year 7 or 8 science inquiry curriculum links in this unit</i>	

Years 9 & 10

Science understanding	
Year 9 & 10	
<i>There are no direct year 9 or 10 science understanding curriculum links in this unit</i>	
Science as a human endeavour	
Nature and development of science	AC9S9H02/AC9S10H02 investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering
Use and influence of science	AC9S9H03/AC9S10H03 analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society
	AC9S9H04/AC9S10H04 examine how the values and needs of society influence the focus of scientific research
Science inquiry	
<i>There are no direct year 9 or 10 science inquiry curriculum links in this unit</i>	

All year level curriculum areas in focus

Science Learning Area	Cross curriculum priorities	General capabilities
Key ideas	Sustainability	Critical and Creative Thinking
<ul style="list-style-type: none"> Stability and change Scale and measurement Systems 	<p>Systems: SS1: All life forms, including human life, are connected through Earth's systems (geosphere, biosphere, hydrosphere and atmosphere) on which they depend for their wellbeing and survival. SS2: Sustainable patterns of living require the responsible use of resources, maintenance of clean air, water and soils, and preservation or restoration of healthy environments.</p> <p>World Views SW1: World views that recognise the interdependence of Earth's systems, and value diversity, equity and social justice, are essential for achieving sustainability.</p> <p>Design: SD1: Sustainably designed products, environments and services aim to minimise the impact on or restore the quality and diversity of environmental, social and economic systems.</p> <p>SD3: Sustainable design requires an awareness of place, past practices, research and technological developments, and balanced judgements based on projected environmental, social and economic impacts.</p>	<ul style="list-style-type: none"> Inquiring
		Ethical understanding
		<ul style="list-style-type: none"> Understanding ethical concepts and perspectives Responding to ethical issues
		Literacy
		<ul style="list-style-type: none"> Reading and viewing
		Numeracy
		<ul style="list-style-type: none"> Number sense and algebra
		Personal and social capability
		<ul style="list-style-type: none"> Social awareness Social management