Teacher Lesson Guide

Going Underground

The important stuff			
This unit was designed for		**Total content duration**	
Target audience	**Year 5-10**	**Total content duration**	**30-45 minutes**
Curriculum links also for		**This unit contains**	**Duration**
Scientific understanding	NA	**Going Underground Video**	Total video 1:26 min
Science as a Human Endeavour	Year 5-10	**TBM fact sheet**	10 min
Science Inquiry	NA	**About our TBM Namesakes**	20 min
Detailed curriculum code alignment for ACARA v9 is available in the Curriculum Alignment section of this unit guide.		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 short lesson provides information on the tunnel boring machines (TBMs) that are being used to build Snowy 2.0. Snowy Hydro is partnering with other engineering and construction firms who specialise in tunnelling and construction around tunnels. In 2025 Snowy 2.0's newest TBM was named after a local Tumut student who created the artwork to be featured on the machine. This lesson can be paired with the Women in STEM unit which explores some of the TBMs' namesakes.

Find detail on ideas discussed in this unit

Lesson breakdown

Activity timing and delivery guide			
Order	**Duration**	**Activity description**	**Notes**
1	1:26 min	**Going Underground Video**	Show the Dr. Kirsten Banks Going Underground Video
2	10 min	**TBM fact sheet**	Share the TBM fact sheet about the tunnel boring machines that are building Snowy 2.0
3	20 min	**About our TBM Namesakes**	Use the fact sheets to showcase the namesakes of the first three Tunnel Boring Machines
4	10 min + 2:24 min	**Snowy 2.0's newest TBM**	Introduce the newest TBM from the info on the Going Underground webpage Show the video about how Monica was named
5	10 min + 0:33 min + 1:10 min	***Optional: How TBM Monica was transported***	TBM Monica had to be separated into pieces to be transported. But even as smaller chunks, the engineering, logistics and design feats are amazing. Show the videos and discuss how engineering advancements are connected with the communities surrounding them.

For this lesson you will need	
Teaching resources	
Video	Dr. Kirsten Banks Going Underground Video
Student resources	
Activity sheets	Tunnel Boring Machine Factsheet About TBM Kirsten Factsheet About TBM Lady Eileen Hudson Factsheet About TBM Florence Factsheet
Video + context	Context given on the Going Underground webpage How do you name a brand-new Tunnel Boring Machine? Video *Optional: Show and discuss how TBM Monica was transported*

Key themes and ideas

Within this unit, students will explore

- How the tunnels for hydropower were excavated and how the length of tunnels for Snowy 2.0 will be excavated
- The namesakes of the Tunnel Boring Machines and the contributions of the women to science and the Snowy Scheme.
- The newest TBM's name was announced in late 2025 after a local Tumut student, a budding engineer and artist. See how the newest TBM was named and watch the effort it takes to transport such a large piece of machinery to where it needs to go.

Curriculum alignment

Years 5 & 6

Science understanding	
Year 5 & 6	
There are no direct year 5 or 6 science understanding curriculum links in this unit	
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
Science inquiry	
There are no direct year 5 or 6 science inquiry curriculum links in this unit	

Years 7 & 8

Science understanding	
Year 7 & 8	
There are no direct year 7 or 8 science understanding curriculum links in this unit	
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	
There are no direct year 7 or 8 science inquiry curriculum links in this unit	

Years 9 & 10

Science understanding	
Year 9 & 10	
There are no direct year 9 or 10 science understanding curriculum links in this unit	
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
Science inquiry	
There are no direct year 9 or 10 science inquiry curriculum links in this unit	

All year level curriculum areas in focus

General capabilities

Critical and Creative Thinking	Digital literacy	Ethical understanding	Intercultural understanding
• Inquiring • Reflecting	-	-	-

Literacy	Numeracy	Personal and social capability	
• Reading and viewing	• Number sense and algebra	• Social awareness	

Science Learning Area

Key ideas

- Form and function

Cross curriculum priorities

Sustainability

Design:
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.

Futures
SF2: Sustainable futures require individuals to seek information, identify solutions, reflect on and evaluate past actions, and collaborate with and influence others as they work towards a desired change.