

# 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 <a href="#">Curriculum Alignment</a> section of this unit guide.		Check the timing and notes of these activities and find links to all of the individual resources in the <a href="#">Lesson Breakdown</a> 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. 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	<b>Going Underground Video</b>	Show the Dr. Kirsten Banks Going Underground Video
2	10 min	<b>TBM fact sheet</b>	Share the TBM fact sheet about the tunnel boring machines that are building Snowy 2.0
3	20 min	<b>About our TBM Namesakes</b>	Use the fact sheets to showcase the namesakes of the first three Tunnel Boring Machines

For this lesson you will need	
Teaching resources	
<b>Video</b>	Dr. Kirsten Banks Going Underground Video
Student resources	
<b>Activity sheets</b>	Tunnel Boring Machine Fact Sheet About TBM Kirsten Fact Sheet About TBM Lady Eileen Hudson About TBM Florence

## 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.

# 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	<a href="#">AC9S5H01/AC9S6H01</a> 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	<a href="#">AC9S7H03/AC9S8H03</a> 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

<u>Critical and Creative Thinking</u>	<u>Digital literacy</u>	<u>Ethical understanding</u>	<u>Intercultural understanding</u>
<ul style="list-style-type: none"> <li><u>Inquiring</u></li> <li><u>Reflecting</u></li> </ul>	-	-	-
<u>Literacy</u>	<u>Numeracy</u>	<u>Personal and social capability</u>	
<ul style="list-style-type: none"> <li><u>Reading and viewing</u></li> </ul>	<ul style="list-style-type: none"> <li><u>Number sense and algebra</u></li> </ul>	<ul style="list-style-type: none"> <li><u>Social awareness</u></li> </ul>	

### 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.