

## Science in the Sheep Industry- Fieldwork program

### AIMS

This camp is designed for secondary students to:

- gain a greater appreciation of the sheep industry
- understand the range of science and technology in the sheep industry
- learn about careers in the sheep industry

### TEACHER NOTES

This program was developed as a part of 'sheep camp' conducted in May 2006 led by LandLearn with input from Elisabeth Murdoch College, Padua College and Woodleigh School. The managing body for the project was the University of Tasmania.

The fieldwork focuses on the area south west of Melbourne and includes Werribee, Geelong and Warrambine. Not all sites listed in this fieldwork are readily accessible. Support is available to conduct this fieldwork, contact [landlearn.program@dpi.vic.gov.au](mailto:landlearn.program@dpi.vic.gov.au).

### CURRICULUM LINKS

This fieldwork has been conducted with year 7 to year 11 students. There are various curriculum links to the Victorian Essential Learning Standards depending on the sites visited, there are other potential links not specified- these will depend on the focus when using the fieldwork.

Domain	Location
<b>Health &amp; Physical Education</b>	• Werribee DPI
<b>Science</b>	• Werribee DPI, Warrambeen, Wool Museum, AWTA, Long Tops
<b>Interpersonal Development</b>	• Whole camp
<b>Civics and Citizenship</b>	• Werribee DPI, Warrambeen, Wool Museum
<b>Humanities- Economics, Geography</b>	• Whole camp
<b>Design, Creativity and Technology</b>	• Werribee DPI, Warrambeen, Wool Museum, AWTA, Long Tops

**DAY ONE****Depart school 8.00am**

Drive Melbourne to Geelong – National Wool Museum

Morning tea on bus

<b>Location</b>	<b>National Wool Museum, Geelong</b> 26 Moorabool Street, Geelong VIC 3220 <i>Students need pen and notepad here</i>
<b>Date</b>	25 <sup>th</sup> May, 11.00 – 1.00pm  Includes approx one hour to browse exhibits
<b>Contact</b>	Richard Patterson, Education Officer (5227 0706)
<b>Objectives</b>	Students gain an overview of the wool industry and get an appreciation for science and technology at work in the industry now and in the past
<b>Description</b>	The National Wool Museum is Australia's only comprehensive museum of wool, showcasing wool's enduring impact on Australia social and economic life. With a brief to explore the past, present and future of the Australian wool industry, the Museum acquires, documents, preserves, stores and exhibits objects and materials directly related to and which reflect significant developments in the Australian wool industry.
<b>Activities</b>	Activities as arranged by Richard- emphasis on science behind the wool industry. <ul style="list-style-type: none"> <li>• Wool industry overview/history</li> <li>• Loom operation, spinning demonstration, husbandry, new technologies</li> <li>• Optional sheep shearing demonstration (not doing on this camp)</li> </ul>
<b>1pm</b> - meet out front of wool museum	

**Lunch:** At Deakin Uni Café (this is next door to the woolstore- good for a look) or Foreshore

**Drive to Warrambeen:** 1:45pm – 2:30pm

*Options*

Go past wool mills, discuss interaction with river

Good to discuss environmental responsibility of manufacturing industry

<b>Location</b>	<b>Warrambeen</b> Approximately 40 minutes from Geelong on the Rokewood-Shelford Road between the towns of Shelford and Rokewood.
<b>Date</b>	25 <sup>th</sup> or 26 <sup>th</sup> May
<b>Contact</b>	Ian and Trish Taylor (5281 3329)
<b>Objectives</b>	Students will learn about an operating sheep property and natural resource issues
<b>Description</b>	<p>Warrambeen Landcare Education Centre is housed in an old, bluestone shearers' quarters built during the 1850's.</p> <p>The Landcare Education Centre offers a unique 'on-farm' experience.</p> <p>The Centre is equipped with:</p> <ul style="list-style-type: none"> <li>• audiovisual equipment (TV and Video),</li> <li>• colourful visual landcare displays,</li> <li>• hands on resources and</li> <li>• loads of useful information.</li> </ul> <p>Greening Australia has developed a Teacher Resource Kit which provides numerous environmental activities for school visitors. All activities are linked to the CSF curriculum and are designed to assist teachers in making the most of a visit to Warrambeen.</p> <p>Warrambeen provides accommodation for 24 people in a modern bunkhouse comprising 6 x2 share rooms and 3 x4 share rooms. A fully equipped kitchen and dining area are made cosy in the cooler months by wood burning heaters, and an outdoor BBQ area adjoins the Landcare Centre.</p>

<p><b>Activities</b></p>	<p><b>3.00pm</b></p> <p>Welcome and safety briefing from Trish</p> <p>Wool classer speak to group</p> <p><b>3.30pm</b></p> <ul style="list-style-type: none"> <li>• Students watching shearing- probably split into 2 groups</li> <li>• Undercover area- Vaccinating, drenching, general drafting and handling (potential for students to try- not all)</li> <li>• Sheep dog working demo</li> <li>• Collect faecal samples for worm count after dinner</li> </ul> <p>4pm Chris from Paratech arrives –assisted with evening activities</p> <p><b>6.30pm Dinner</b></p> <p><b>8.00pm</b> More activities</p> <p>Worm testing – microscopes 11 microscopes</p> <p>Potential to collect wood for small bonfire from under trees or games/quiz</p> <p>Cook marshmallows</p> <p>11pm lights out</p>
<p><b>Sleeping arrangements</b></p>	<p>There are 24 beds in bunkrooms at Warrambeen. Extras stay either in Landcare centre or in tents.</p>

**DAY TWO****Breakfast** 8am – 9am

Pack gear into bus ready to go

**9am – 10.30am**

- Trish can take students for half hour out on the farm.
- *LandLearn Fibre to Yarn session* (1 hour)- will build on activities at wool museum- science of fabrics- especially wool.

*Options*

See free range piggery

**Get on bus-10.40am**

Lunch first thing at Werribee

<b>Location</b>	<b>DPI Werribee</b> Go straight through Werribee, turn right into Sneydes Road – there is a sign to 'Agriculture Precinct' (just before police station). Turn left into 600 Sneydes Rd- park in visitors carpark and go to reception to be shown to conference room.
<b>Date</b>	26 <sup>th</sup> May, 12noon- 2pm
<b>Contact</b>	<a href="mailto:landlearn.program@dpi.vic.gov.au">landlearn.program@dpi.vic.gov.au</a> or phone 9296 4609
<b>Objectives</b>	Students will learn about DPI as an employer and the science involved in DPI's work with the sheep industry
<b>Description</b>	<p><b>12 noon- 12.30pm</b> Lunch in seminar room 12.20pm- Chris H to welcome/discuss overall considerations when at the site- safety, animal ethics approval due to nature of work students will see.</p> <p><b>Activities</b></p> <p><b>1. MRTC- Meat Research and Training Centre</b></p> <ul style="list-style-type: none"> <li>• Walk through abattoir process,</li> <li>• See technology used when slaughtering animals,</li> <li>• Effect of welfare on meat quality- meat science</li> </ul> <p><b>2. Seminar/animal welfare</b></p> <ul style="list-style-type: none"> <li>• Students will hear about work happening at the site including animal welfare and animals as models of human health</li> </ul> <p><b>3. DXA- Dual Absorbency X-ray</b></p> <ul style="list-style-type: none"> <li>• A 3D x-ray machine used to analyse body composition in animals- latest technology</li> <li>• Machine may be operating using anaesthetised animals or dead animal parts</li> <li>• Human health links</li> </ul>

	<p><b>Rotating groups (8 students, 2 teachers per group)</b>  <b>12.30pm</b> (20 mins and 10 mins moving/buffer time)                  Group A- MRTC                  Group B- Seminar                  Group C- DXA</p> <p><b>1pm</b>                  Group A- DXA                  Group B- MRTC                  Group C- Seminar</p> <p><b>1.30pm</b>                  Group A- Seminar                  Group B- DXA                  Group C- MRTC</p>
<p><b>Notes to presenters</b></p>	<p><b>Students-</b> Year 8 – 11</p> <p><b>Background-</b> The students have chosen to attend this camp due to an interest in agriculture and study ag at school.</p> <p><b>Teaching tips-</b>                  Check understanding as you go- if you look to the teachers they can give you an indication of whether you need to elaborate on a concept.</p> <p>You can ask questions such as to get an idea of what the students already know:</p> <ol style="list-style-type: none"> <li>1. Who has been involved with farm animals before?</li> <li>2. Has anyone ever been to an abattoir?</li> <li>3. How do you think xxx works?</li> <li>4. Any guesses why stress makes meat tough?</li> </ol> <p>Give students the chance to ask questions- if they don't ask any don't worry- the teachers might help out and offer prompts, or you can just move on. You can offer prizes to those who ask/answer questions it works very well even if only a mintie.</p> <p>Props, images, questions, hands-on all help maintain students' attention.</p> <p>The teachers are there to support you so if at any time you want guidance/assistance please ask.</p>
	<p>Last 10 mins- camp evaluation</p>

<p><b>Activity</b></p>	<p><b>Issues and insights from sheep camp</b>                  A structured group activity, students work in pairs to identify issues and insights.</p> <p>10 minutes group work- plan a presentation (on butchers paper) about issues and insights- group discussion after all groups present (3 minutes each).                  Students need to note questions and points during the presentations.</p>
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Back to school by 4.30pm, afternoon tea on bus

**Background notes**

Accommodation at Warrambeen = \$20 per person

BBQ dinner and breakfast- arranged by Shelford Primary School = \$20 per person

## Other potential fieldwork sites for the wool industry

<b>Location</b>	Australian Wool Testing Authority (AWTA), Kensington
<b>Contact</b>	Tim Steere: 9371 4100
<b>Objectives</b>	Learning about the science of raw wool testing
<b>Description</b>	<p>AWTA Ltd has 3 Raw Wool testing laboratories. They are situated in Melbourne, Sydney and Fremantle. The Melbourne laboratory services the Southern Region (Victoria, Tasmania and South Australia). Each laboratory operates 24 hours a day, 5 days a week, and throughout Australia nearly 800 people are employed to provide services to customers.</p> <p>Our principal business is the certification of greasy wool for trading. Bales are sampled and weighed, and the samples tested for clean fibre content (Yield), Fibre Diameter, Vegetable Matter content, Staple Length &amp; Strength, and Colour. Sampling and testing is conducted in accordance with the International Wool Textile Organisation (IWTO) regulations and methods, and results are issued as IWTO Certificates.</p> <p>Many customers require a quick return of certified test results so that they can trade the wool. We provide 3 different levels of service to meet customer needs:  <b>Express Service:</b> 95% of Certificates are available the following morning.  <b>Fast Service:</b> 95% of Certificates are available within 3 days.  <b>Normal Service:</b> All Certificates are available within 5 days.</p>
<b>Activities</b>	Ideas: Q&A sheet

<b>Location</b>	<p>Long Tops Holdings Pty Ltd, Geelong</p> <p>158 Weddell Rd, North Geelong Vic 3215</p> <p>Woollen Spinning Mill</p>
<b>Contact</b>	Richard Patterson (5227 0706) at wool museum for further information
<b>Objectives</b>	Students will get a good look at wool processing
<b>Description</b>	<p>Commission processors of wool, alpaca and mohair.</p> <p>We have in stock top and yarn in 100% wool and alpaca, and blends of wool, alpaca, mohair and silk in natural colours.</p> <p>The site does wool processing on a small scale.</p> <p>Good scientific place....</p>
<b>Activities</b>	Ideas: Q&A sheet