Lesson objective

In this lesson students will explore the wool supply chain and the impacts of wool products on the places that produce the raw materials, make the product, and receive the wastes at the end of its life.

Students will have the opportunity to:

- explore the environmental impacts along the wool supply chain — from farm to fashion
- investigate the inherent qualities of the wool fibre that relate to its environmental impacts as a textile product and fashion choice
- consider the role of life cycle assessment (LCA) in determining sustainable fashion choices.

Lesson focus

The focus of this lesson is to encourage students to consider the wide-reaching impacts of their fashion choices and explore some of the factors to consider when they make purchasing decisions.

Setting the context

Issues associated with the fashion industry are many, ranging from the production of raw materials used in textiles (e.g. synthetic fibres versus natural fibres and plant versus animal fibres) and the processes and technology used to create garments (and the conditions under which textiles and garments are made), their care during use and management at their end of life (i.e. waste management).

The fashion industry is the second most polluting industry in the world (*The true cost*, Andrew Morgan) with 85% of clothing in Australia ending up in landfill (*Fashion waste*, Behind the news)

Life cycle assessment (LCA) is one tool that attempts to tell the environmental story of products across the entire supply chain, from including raw material acquisition, manufacturing, use, recycling, end-of-life and disposal.

Wool is a natural, biodegradable and renewable fibre produced by sheep. Australia produces 90% of the world's fine apparel wool, producing more than 325 million kilograms of greasy wool in 2016/17 (AWI, 2017).

Australian woolgrowers are renowned for their sustainable farming and animal welfare practices, with many woolgrowers combining wool production with a sustainable mix of other farming and land management activities.

However, about 98% of the wool produced in Australia is exported, mostly to China.

Wool processing and manufacturing occurs across northern hemisphere countries such as China, India, Vietnam, Turkey and Italy. Consumption of wool and wool blend products also occurs mostly across the northern hemisphere in Europe, Asia and the United States (Source: AWI Strategic plan 2016–19)

The wool industry is investing in an accurate and scientifically credible assessment of wool's environmental footprint from the farm, through all supply chain stages to wool's ultimate biodegradation back into the soil. (Source: IWTO Wool life cycle assessment)

Introduction

Explain to students in this lesson they will be exploring ways they can make informed decisions about fashion consumption.

To begin the lesson, ask students to review their working definitions of fast fashion from the previous lesson.

Review with students some of the ways they can make more responsible fashion choices, recording key points as students share them.

Explain to students that during this lesson they will be exploring the concept of life cycle assessment (LCA) as a way to support sustainable fashion choices, using wool as an example.

Ask students if anyone can explain what they think the term life cycle assessment means.

Record students' suggestions, but explain that you will review their responses at the end of the lesson.

Body of lesson

1. Play the video This is wool (1 min 20 sec).
2. Use the following questions to generate discussion about the video:
    - Where is most of the world's wool produced? (Answer: Australia is the biggest global producer of clean wool. AWI, 2017)
    - Where is most of Australia's raw wool sold? (Answer: About 98% of Australia's wool is exported — 80% is exported to China)
    - What processes does wool undergo from farm to fashion? (see the *Wool processing* poster for a simple explanation of the wool supply chain)
    - What are benefits of wool mentioned in the video that minimise its impact on the environment? (Answer:Wool is natural,renewable and biodegradable).
3. Explain that during the next few lessons students will be exploring the wool supply chain in preparation for a debate about sustainable fashion choices at the end of this unit.

4. Tell students you will be using a Jigsaw co-operative learning activity to build students' knowledge of the wool supply chain.The Jigsaw technique is designed for cooperative learning in small groups. Students have the opportunity to become 'experts' in a particular subject, and share their knowledge with their peers. This technique promotes both self and peer teaching, which requires students to understand the material at a deeper level and engage in discussion, problem solving, and learning.
5. Organise students into five groups in preparation for the activity. Give students in each group an identifying item (one per student — e.g. a coloured dot, sash, popsicle stick etc). Explain that this group is their 'expert' group and each 'expert' group will be researching a given topic relating to wool and the wool supply chain.
6. Following the research phase, students will be required to circulate and share their expertise with students from other groups.
7. Share with students the Learn About Wool: Wool processing poster and briefly outline the key steps in the wool supply chain. Explain that the following investigation will also include the use and end-of-life stages of a wool garment.
8. Allocate each expert group with one of the following topics:
    - Wool production (on farm)
    - Wool harvesting and selling (farm to receival store)
    - Wool processing (from farm to fashion)
    - Wool fabrics and properties
    - Measuring the wool supply chain footprint
9. Provide students with access to the resources listed at the start of this unit and encourage them to search the Learn About Wool Resource Library for more information.
10. Suggest students organise their information using a graphic device such as a fishbone graphic organiser, a table, or another appropriate form to represent their information from a range of sources. As a group encourage students to evaluate their information sources for their reliability, bias and usefulness — support groups to ensure each group member feels confident they can share their 'expertise'; with others from other groups. Explain that they will have a maximum of five minutes to share their key points with others in the next step.
11. Following the research and information collection and organisation session, create new groups, ensuring each new group has a least one member from the original 'expert' group. Students can check if they have completed this step correctly by making sure they have an identifying item from each original group represented.
12. Allow students enough time to share their expertise and ensure all members of the group have a shared understanding of each topic.
13. Ask students to connect the various pieces of the wool supply chain to see how they interact.

Conclusion

Conclude the lesson with a 'minute paper' as a reflective strategy to identify areas where further enquiry may be required.

Explain to students they will have one minute to reflect on what they have learned about the wool supply chain and how the life cycle assessment process can inform more sustainable fashion choices. Let students know you will collect their responses, which will help inform the content of the next lesson.

Hand out a piece of paper to each student and ask them to:

- list three significant impacts of fast fashion
- list two ways wool minimises these impacts
- list one question or concern that remains in their minds about making sustainable fashion choices.

Links to the Australian Curriculum:

- Evaluate sources for their reliability, bias and usefulness and select, collect, record and organise relevant geographical data and information, using ethical protocols, from a range of appropriate primary and secondary sources (ACHGS064).
- Represent multi-variable data in a range of appropriate forms, for example scatter plots, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies (ACHGS065)