

Pre-lesson preparation, materials and equipment

The LEARN ABOUT WOOL online resource library, combined with the suggested resources listed below will give you ample background information to carry out this lesson and answer a range of questions posed by students.

Useful resources:

LEARN ABOUT WOOL primary factsheets

- [From farm to fashion](#)
- [Inside a wool fibre](#)

LEARN ABOUT WOOL poster

- [Structure of a wool fibre](#)

Useful links

- [Easy ways to make felted balls](#)
- [Pinterest felted objects](#)
- [Wool fibre animation Discovering wool](#)

Useful book

- *The story of wool* (Kondinin Group)

Videos

- [Wool fibre animation Discovering wool](#)
- [How to make wet-felted balls](#)

Materials and equipment

- Sufficient quantity of wool top for class
- Bottle of dishwashing liquid
- Small containers for hot and cold water
- Scissors
- LEARN ABOUT WOOL kit fibre, yarn and fabric samples
- Class science journal
- Paper for accordion book
- The story of wool book (Kondinin Group)
- A selection of felted items such as craft felt, decorations, felt jewellery, wool shoes, bags, clothing or hats
- LEARN ABOUT WOOL factsheets
 - [From farm to fashion](#)
 - [Inside a wool fibre](#)
- LEARN ABOUT WOOL poster
 - [Structure of a wool fibre](#)
- Video
 - [Wool fibre animation Discovering wool](#)

Lesson objective

To allow students to manipulate wool by hand felting and record the process by which they physically changed the raw wool sample.

Students will have the opportunity to:

- manipulate wool using a hand-felted technique
- share their work with others.

Lesson focus

The focus of this lesson is to allow students to explore the way wool can be physically changed by hand felting and the implications of the outcomes of these changes for its end use.

Setting the context

Felting is a technique used to produce wool products and textiles from wool that has not yet been processed into yarn, which capitalises on the natural structure of the wool fibre. Each fibre is surrounded by microscopic, overlapping scales (cuticle cells), which allow individual fibres to move more easily against each other in one direction than the other when agitated. When wet, the scales of the wool fibres swell and lift. When agitated (e.g. during washing or rubbing) the adjacent fibres move relative to each other and the scale edges 'lift' inhibiting the return of the fibres to their original position adjacent to other fibres and causing the fibres to 'felt'.

Although felting can be used to create a fabric in its own right, knitted and woven wool fabric can also 'felt' under certain conditions (e.g. high levels of agitation when wet). Felting under such conditions is not always a desired effect, so it is important to launder wool garments according to label care instructions.

Felting of wool fabric increases its thickness, making it warmer, with better wind resistance. Felting also changes the appearance of a fabric, giving it a fuzzy surface, which can also make the fabric feel softer.

In woven fabrics, felting also changes the geometry of the surface by completely obscuring the weave and making the surface of the fabric flatter. An example is billiard table cloth. Felted fabrics can also be used for clothing and interior textiles.

By investigating the structure of the wool fibre using digital resources, students will develop an understanding of how the wool fibre can be processed into yarn and felt. They will learn how to undertake these processes by hand and participate in activities allowing them to create their own felted designs.

Each student can record the stages of their creative process in an accordion book to complete this lesson.

More background information on wool processing can be found in the LEARN ABOUT WOOL online resource library or the [Woolmark Learning Centre Wool Appreciation Course](#).

Introduction

Using the class journal, reflect with students what they now know about wool — where it comes from and how it is processed into yarn and fabric. Revisit the structure of the wool fibre and discuss the presence of scales on the surface of each fibre. Indicate that this is an important feature to keep in mind when carrying out the activities during this lesson.

Show students a selection of felted items (teacher to provide) such as craft felt, decorations, felt jewellery, wool shoes, bags, clothing or hats. Ask the students to describe how they look and feel. What similarities and differences can they identify when comparing these items to the fabric samples from the LEARN ABOUT WOOL kit? Explain to students that in this lesson they will have the opportunity to create their own wool felt from wool top.

Body of lesson

1. Show students the wool fibre animation again: [Discovering wool](#). Revisit the key features of the structure of the wool fibre, pointing out the scales on the surface of each fibre. Reinforce this feature by referring students to the LEARN ABOUT WOOL poster [Structure of a wool fibre](#) and the factsheet [Inside a wool fibre](#). Remind students that the scales (also known as cuticle cells) are important for protection, felting behaviour and handle (feel) of wool products. The scales overlap and are layered in a single direction which gives animal fibres their unusual frictional properties. This characteristic of the wool fibre means that when wool is wet and agitated, the scales contribute to the friction between the fibres, resulting in entanglement of the fibres and is seen as a thickening or matting of the woollen fabric. This change, known as felting, is permanent and cannot be reversed.
2. Explain to students that they will be using wool top again for this practical activity. Ask students if they can recall which part of the wool processing journey top is produced. Wool top is produced from raw fleece (also known as greasy wool) shorn from the sheep which is then washed (scoured) to remove contaminants. This wool is then carded, gilled and combed, resulting in a collection of aligned fibres, without twist, ready for spinning.
3. Ask students to carefully watch the instructional video [How to make wet-felted balls](#) listed at the beginning of this lesson.
4. Divide the students into pairs and distribute a small amount of wool top, scissors, two small containers for

warm and cold water and a small amount of dishwashing liquid to each group.

5. Allow the students to manipulate the top into balls by taking a small handful of top, cutting it into small pieces and fluffing up each piece, as shown in the video. Place a drop of dishwashing liquid in the centre of the top and then immerse it in alternate containers of warm and cold water, gently rolling the wool into a ball with each immersion. Indicate to students that the wool does not have to be squeezed hard after each immersion and rolling the felt ball gently will give the best results.
6. As they undertake the activity, encourage them to think about how the wool is being changed from wool top to felt. What are some of the actions they are taking which are changing the shape of the wool top? How is the structure of the wool fibre causing entanglement of the fibres? Remind the students of the scales on the surface of the wool fibres.
7. Record the felt-making process in an accordion book showing each stage of the processes clearly. Encourage students to label illustrations where possible.

Conclusion

Encourage students to compare their felted balls to the felted items displayed. Ask them to identify the similarities and differences between their creations and those commercially manufactured. Encourage them to think about how a garment made from felted wool might perform differently to garments made of woven or knitted fabrics. These can be recorded in the class science journal or on the board.

Extension activity

Using Pinterest for inspiration, encourage students to select their own woollen craft designs to create and share with the class. These can be displayed in the classroom or taken home. Some example search terms include *fuzzy yarn sheep*, *needle felted design* and *felted wool dryer balls*.

Links to the Australian Curriculum:

- Everyday materials can be physically changed in a variety of ways ([ACSSU018](#))
- Science involves observing, asking questions about, and describing changes in, objects and events ([ACSHE021](#))
- Participate in guided investigations to explore and answer questions ([ACSI025](#))
- Represent and communicate observations and ideas in a variety of ways ([ACSI029](#))
- Use materials, components, tools, equipment and techniques to safely make designed solutions ([ACTDEP007](#))
- Explore the characteristics and properties of materials and components that are used to produce designed solutions ([ACTDEK004](#))