

Pre-lesson preparation, materials and equipment

The LEARN ABOUT WOOL factsheet [Properties of wool](#), 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.

A student worksheet *Does wool burn?* has been provided for you to distribute to students for recording their predictions and their observations from this lesson.

Useful resources:

LEARN ABOUT WOOL kit factsheet:

- [Properties of wool](#)

Video:

- [Sam the Lamb – Does wool burn?](#)

Additional resources:

- IWTO: [Wool and fire](#) factsheet
- IWTO: [Wool and flame resistance](#) factsheet

Materials and equipment

- Class journal to record student reflections
- Video:
 - [Sam the Lamb – Does wool burn?](#)
- LEARN ABOUT WOOL student worksheet:
 - *Does wool burn?*

Lesson objective:

- To allow students to observe and compare the flammability of a range of common textiles and draw conclusions about the suitability of these textiles for a range of everyday uses.

Students will have the opportunity to:

- observe the flammability of wool compared with a range of natural and synthetic fibres
- consider the implications of flammable fibres in a range of everyday uses.

Setting the context

Wool's chemical structure makes it naturally flame resistant. It is a highly-trusted natural fibre in public areas such as hotels, aircraft, hospitals and theatres.

Wool is harder to ignite than many common textile fibres. While cotton catches alight at 255°C, the temperature must reach 570–600°C before wool will ignite; while polyester melts at 252–292°C and nylon succumbs at an even lower 160–260°C, wool never melts so it can't stick to the skin like many common synthetics.

Lesson focus

The focus of this lesson is to encourage students to think about the link between the properties of a fibre and the implications for its end use, in particular why wool is a safe fibre to wear or to use in home furnishings.

Introduction

Review the class science journal and discuss the observations students have made so far about wool including the physical features that help wool protect sheep under a range of weather conditions.

Explain to students that wool has some unique features we can't see, but we can test for, such as flammability.

Ensure students understand that flammability describes whether or not a material will burn easily or not. Explain to students they will be watching a video about the flammability of a range of fabrics.

Body of lesson

- Distribute the student worksheet sheet *Does wool burn?* to students and explain you will be asking them to predict what will happen when each of the fabrics (textiles) is exposed to a flame. They will need to record their predictions before the video demonstration and their observations after they have watched the video demonstration.
- Start the video [Sam the Lamb – Does wool burn?](#) stopping before each fabric is exposed to the flame. Ask students to predict what will happen when each fabric is exposed to the flame and circle the corresponding option on their worksheet.
- Following each demonstration, ask students to describe what happened during the demonstration. Discuss whether what happened matched their predictions. Ask students to record what happened on their worksheet by circling the appropriate option.
- Repeat this process for each fabric type.
- In light of the results of this activity, discuss with students the relative safety of each of the fabric types in the event of a fire. Ask students to complete their worksheet by circling the safest (least flammable) option shown at the bottom of the sheet. Discuss with students the implications of this experiment in regards to the safety of furnishings and clothing, such as children's pyjamas, drying clothes on a heater or near a fire, or furnishings such as curtains, floor coverings and bedding.

Conclusion

Ask students to help you write a sentence to describe the fire-resistant properties of wool and add this to your class science journal under the heading *Is wool flammable?*

Explain that during the next few lessons you will be investigating further the unique properties of wool and how these properties influence the way we use wool in a range of everyday products.

Links to the Australian curriculum:

- Science involves exploring and observing the world using the senses ([ACSH013](#))
- Pose and respond to questions about familiar objects and events ([ACSI014](#))
- Explore and make observations by using the senses ([ACSI011](#))
- Share observations and ideas ([ACSI012](#))
- Engage in discussions about observations and represent ideas ([ACSI233](#))