Pre-lesson preparation, materials and equipment

The LEARN ABOUT WOOL factsheets and links below provide ample background information to carry out this lesson and answer a range of questions posed by students.

A range of additional resources is available in the LEARN ABOUT WOOL online resource library.

Useful resources:

LEARN ABOUT WOOL primary factsheets

- *What is wool?*
- *How wool grows*
- *Inside a wool fibre*
- *Properties of wool*
- *Wool—the natural fibre*
- *Different types of wool fabrics*

Videos

- *Sam the Lamb — what is wool?*
- *The innovator*
- *Merino, the baby wool*
- *How my sweater came to be*

Useful links

- *Enviro-stories library*
- *Wool fibre facts and benefits*

Useful books

- The Workboot Series - *The story of wool (Kondinin Group)*

Materials and equipment

- LEARN ABOUT WOOL kit fabric and fibre samples
- A range of objects made from various materials (e.g. wood, metal, polystyrene, plastic, glass, rubber, cotton, wool, Lycra)
- Cardboard boxes to hold objects so students cannot see the objects while they feel them.
- A range of clothing and furnishings made from wool, cotton and other fibres (socks, blankets, jumpers, t-shirts, pyjamas, sportswear, baby clothes etc.)
- Try to include a range of wool items ranging from worsted-spun woven and knitted (e.g. T-shirts and tailored pants or skirts) through to woollen-spun woven and knitted fabrics (e.g. heavy winter coats and jumpers — see the *Different types of wool fabrics* factsheet for ideas).
- Student science journal
- Student worksheet — Properties of materials

Lesson objective:

- To capture students' interest and introduce them to the language used to describe the properties of everyday materials.
- To explore what students know about the origins of everyday fabrics they are familiar with.
- To introduce students to the concepts of 'natural' and 'synthetic' fibres.
- To draw out questions from students about where wool comes from and what it is used for.

Students will have the opportunity to:

- explore and make observations about a range of materials
- discuss the different uses for fabric/textiles (e.g. clothing, bedding and furnishings) and investigate the sources of the textiles used in a range of everyday products (e.g. animals, plants and petrochemicals).
- explore the difference between natural and synthetic fibres
- identify the source of wool.

Setting the context

Many students will have little knowledge about or experience with the origin of the textiles (fabrics) used in everyday items of clothing and furnishing. They may not clearly understand the difference between 'natural fibres' and 'synthetic fibres' or appreciate the different properties of a wide range of fibres. This lesson allows students to explore a range of textiles and fibres and their observable properties, such as texture, strength, elasticity.

Lesson focus

The focus of this lesson is to spark students' interest, stimulate their curiosity, raise questions for inquiry and gain an understanding of their existing beliefs about the textiles and fibres they come into contact with every day. These existing ideas can then be taken into account during future lessons.

Introduction

Divide students into small groups and encourage them to explore the range of objects in the 'touch and feel' boxes (where the items are hidden from view and the students can feel, but not see, the contents of the box). Ask students to share their observations as they explore the items. Encourage them to describe the way the items feel. When each group has had the opportunity to feel the items, ask students to return to their seats and share their observations and write their descriptions in their science journal. Ask students if they can guess what the items are and encourage them to explain how they are drawing their conclusions.

Body of lesson

1. Explain to students that different objects are made from different materials, which have different 'properties'. Ask students to write the word 'properties' in their science journal. Explain that the word properties can be defined as 'the way an object looks, feels, smells, tastes or behaves in certain situations'. Ensure students also record this definition in their science journals.
2. Direct students to complete the worksheet *Properties of materials*. Ask students why they think each of the items in the worksheet has been made using the materials they have listed. Guide the discussion with questions such as:
   - "What would happen if the jumper was made of paper instead of wool?"
   - "Why do you think bottles are made of glass or plastic and not paper?"
   - "What would it feel like wearing thongs made of wood or metal?"
   - "What would happen if coins were made of chocolate instead of metal?"

Conclusion

Explain to students that during this unit of work you are going to investigate the properties of one of Australia's most important natural fibres — wool — and how these properties influence the way we use wool in a range of everyday products.

Ask students if they can guess which items in the 'touch and feel' boxes were made from wool. Ask students to identify the properties that suggested the items were woollen. Identify the woollen items in the collection of objects the students have been exploring and review their descriptions of these items, asking when they might wear or use these items and why. Ask students to record their findings in their science journal.

Ask students if they know where wool comes from and if necessary, explain that wool comes from sheep. You could ask students to read the information on the *LEARN ABOUT WOOL* factsheets *What is wool?* and *How wool grows*. In particular, students may be interested in the *Did you know?* facts about wool on each factsheet. Allow students time at the end of the lesson to explore the LEARN ABOUT WOOL factsheets, videos and useful links.

Extension activity

Explain to students that wool is a 'natural' fibre. Ask students to guess what that might mean and ask them to write their predictions in their science journal under the heading *Natural fibres*. Using the factsheet *Wool the natural fibre*, as a reference, explain to students that the clothes they wear each day can be grouped into 'natural' and 'synthetic' fibres. Talk about other 'natural' fibres, such as cotton and silk and 'synthetic' fibres such as polyester and Lycra using samples from the earlier investigation as examples.

You might like to allow students to explore some of the stories in the Enviro-stories online library — Our Farms are Our Future, such as Fluffy's getting shorn and My life on a sheep farm — or the videos as listed at the beginning of this lesson plan. Students can also explore The Woolmark Company website for further information about how wool is produced and processed.

Students might like to investigate whether the clothes they are wearing are made from natural or synthetic fibres and record their findings in their science journal.

Links to the Australian Curriculum:

- Natural and processed materials have a range of physical properties that can influence their use (ACSSU074)
- Represent and communicate observations, ideas and findings using formal and informal representations (ACSIS071)
- Science involves making predictions and describing patterns and relationships (ACSHE061)