

Natural Insulators

Activity:

Students observe, identify and describe the natural fibre from sheep.

Curriculum Fit:

Grade 2 Science Topic D: Hot and Cold Temperature

SLE 2-9.8 Describe the role of insulation in keeping things hot or cold, and identify places where some form of insulation is used; clothing, homes, etc. **2-9.9** Identify materials that insulate animals from the cold; e.g wool and identify materials that are used by humans for the same purpose.

Grade 2 Social Studies Topic 2.1 Canada's Dynamic Communities

SLE: 2.1.4 Investigate the economic characteristics of communities in Canada by exploring and reflecting upon: What kinds of natural resources exist in the communities (e.g., agriculture)? What are the occupations in the communities?

Grade 3 Science Topic D: Animal Life Cycles

3-10 Describe the appearance and life cycles of some common animals, and identify their adaptations to different environments, **SLE:7.** Recognize adaptations of a an animal to its environment.

Elementary Art Level One: Grade 1 & 2

Outcomes: E. Fabric Arts Use a simple handmade loom to weave plain or tabby pattern. Braid wool or cloth strips to be used as enhancements.

Elementary Art Level Two: Grade 3 & 4

Outcomes: E. Fabric Arts Continue to advance weaving techniques beyond Level One to include such things as warping a simple loom: achieving interesting surface qualities with open weave, double weave; using looms that are not rectangular in shape; altering the weave on an existing, loosely woven fabric.

Agriculture Concepts:

Production, processing and marketing systems
Diversity of agriculture

Cognitive Level:

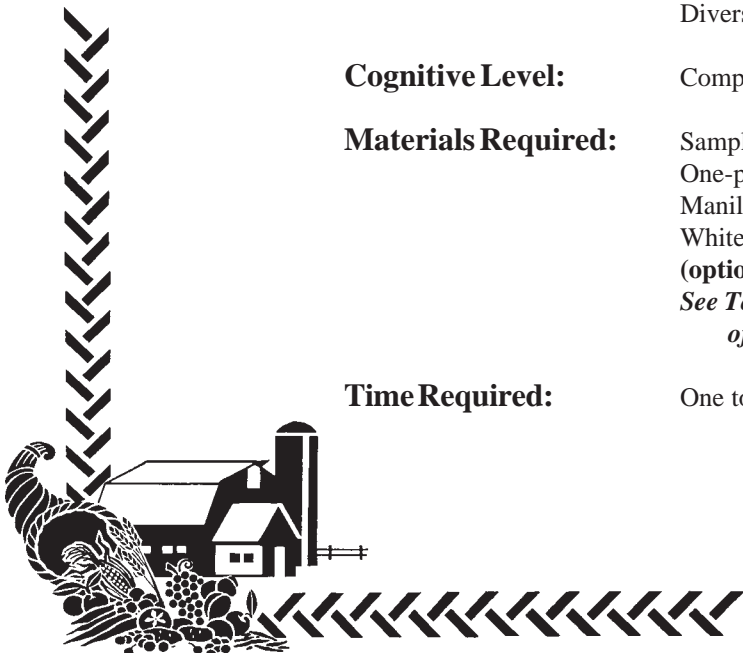
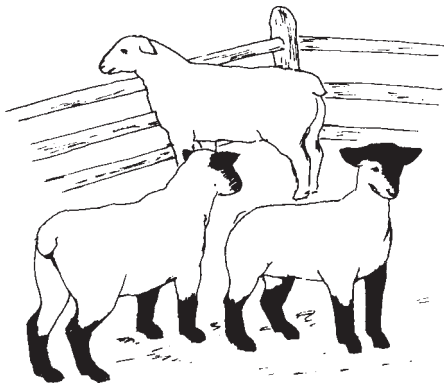
Comprehension, Application, Analysis, Synthesis

Materials Required:

Samples of unwashed wool, washed wool, carded wool, and dyed wool
One-ply, two-ply, and three-ply samples of yarn
Manila tag for mounting samples
White paper to clean wool on
(optional) Books about sheep and wool
See Teacher Resource Sheet #1 for suggested books and sources of wool samples

Time Required:

One to two class periods



In Fabric Arts, students learn to weave on hand-made looms and to alter the weave of an existing loosely woven fabric (burlap). It is very easy to integrate the study of natural fibres using wool as a starting point. Small groups would be the most satisfactory for this hands-on activity.

Procedure

Preparation

1. If you are using an activity centre approach, prepare five other activities to be done independently in groups (see Teacher Resource Sheet #2). Then build up the children's knowledge by reading and discussing items that you feel they should understand in order to be successful at each activity.

Introduction

2. Read *The Weavers Gift*, Chapters "A Puff of Smoke You Can Hold" and "Almost Magic."
3. Read *Warm as Wool* and discuss sheep in general.

The Activity

6. Give each group a sheet of white paper to clean their wool on.

NOTE

It is best to have student samples of raw wool wrapped in plastic wrap ahead of time. Show the children a fleece ahead of time, too, and have a small raw wool sample on hand for them to feel if they wish. This will also keep your classroom smelling fresher.

7. Lead your students through the following activities:
 - a) Choose a piece of unwashed wool that has been taken from the fleece in layers. This is a piece of raw wool. Discuss what raw wool means.
 - b) Observe the crimp in one fibre that you have pulled from your sample. Find the word crimp in your dictionary. Record the meaning in your glossary.
 - c) Feel the softness of the wool. How does it feel on your fingers? What word might describe the way it feels?
 - d) Now work with a piece of washed wool. Pull each lump apart over your piece of white paper. What do you see? (Students should record such things as dust, seeds, dried sheep ticks, thistles, hay

flakes, straw bits.)

- e) Use your fingers to pull apart the fibres of the washed wool and try to line them up in one direction. What happens when you let go of a fibre?
 - f) Choose a sample of dyed wool. Think about the colour. How could you find out about the dyeing process?
 - g) Choose your yarn samples.
8. Tell students they are to use the samples they have chosen in the preceding activities to create a visual story of wool. Hand out the manila tag and other art supplies (crayons, markers).

Conclusion

9. Display completed projects in the classroom.
10. Brainstorm with students to produce a list of words that describe wool. Examples:
The raw wool smells feels
The clean wool smells ... feels
The raw wool looks
The clean wool looks

Discussion Questions

1. What is a natural fibre? Why do you suppose wool is called a natural fibre?
2. Did you notice something that might make the wool water repellent? (Natural oils or lanolin keep the sheep dry).
3. Wool is an insulator. How could you explain to your friends how this works. (Fibre crimp locks in air but allows the fabric to breath).
4. Compare a wool sweater with a cotton sweater. Discuss the differences.
5. Compare yarn: 1-ply, 2-ply, 3-ply. A single fibre of wool is covered with tiny hooks. Explain that individual fibres are twisted together so that the tiny hooks interlock into a single strand of yarn. The locking hooks give wool yarn its strength.

Related Activities

1. Invite a wool producer to tell the class about the industry.
2. Visit a nearby farm with sheep.
3. Invite a resource person to demonstrate spinning and/or weaving.
4. Tour a woolen mill (see Teacher Resource #1 for possibilities).
5. Hold an open house in the classroom and invite parents to view student projects, students' creative writing, and sheep products. Students act as hosts and explain the displays to their parents.

by *Beatrice Kore*

Teacher Resource Sheet #1

Sheep: Resources

Books About Sheep and Wool

Warm as Wool by Scott Russel Sanders, illustrated by Helen Cogancherry

The Weaver's Gift by Kathryn Lasby

Sheep Out to Eat by Nancy Shaw

Sheep in a Shop by Nancy Shaw

Sheep by Ralph Whitlock

Argyle by Barbara Brooks Wallace

Here's to Ewe [Riddles about Sheep] by Diane L. Burns & Dan Scholten.

When Sheep Cannot Sleep by Satoski Kitamura

Beatrice and Vanessa by John Yoeman and Quentin Blake

Charlie Needs a Cloak by Tomie de Paola

What was It Before - before it was a sweater? A Let's Find out Book
by Roseva Schreckhise

From Cotton to Pants by Ali Mitgutsch

Textiles by Susie O'Reilly

Textiles by Heinz Kurth

Weaving Step by Step by Hilary Chetwynd

Let's Discover Weaving by Jenean Romberg

Warm as Wool Cool as Cotton by Carter Houck

Weaving Without a Loom by Sarita R. Rainey

A New Coat for Anna by Harriet Ziefert and Anita Lobel

Ida & the Wool Smugglers by Sue Ann Alderson and Ann Blades

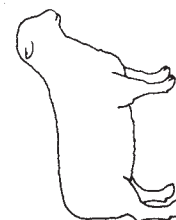
The Shepherd Boy by Kim Lewis

Amos's Sweater

The Little Lamb

Lambs - see How they Grow

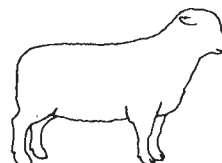
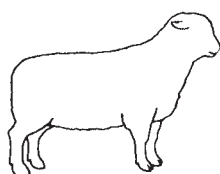
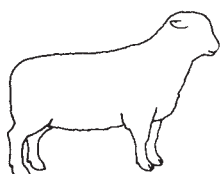
Minikin by Stephen Cosgrove



Other Resources

Wool, Spindle and Literature, Teacher's Guide

Teacher's Guide for Exploring the Miracle



Teacher Resource Sheet #1

Sources for Wool Samples

The Ontario Sheep Marketing Agency
50 Dovercliffe Road, Unit 13
Guelph, Ontario N1G 3A6
(A large kit complete with wool samples and spindles. Excellent but expensive)

Wool Education Center
6911 south Yosemite Street
Englewood, CA
80112-1414
(Fibre to Fabric American Wool Kit)

Custom Woolen Mills, Ltd.
Daniel Fisher or Fen Roessingh
R.R. 1
Carstairs, Alberta T0M 0N0
Phone: (403) 337-2221
(Tour and/or information)

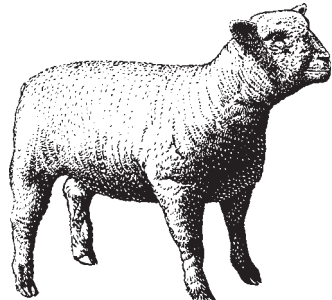
Alberta Sheep and Wool Commission
#203, 2916 - 19 Street, N.E.
Calgary, Alberta T2E 6Y9
Phone: (403) 735-5111
Fax: (403) 735-5110
(Excellent source of materials)

Alberta Sheep Breeders' Association
Breeders' Directory
(Map of Alberta showing where the breeders are located)

Publications Office
Alberta Agriculture, Food
and Rural Development
7000 - 113 Street
Edmonton, Alberta T6H 5T6
Phone: (403) 427-2121
or 1-800-292-5697
(Booklet, Alberta Wool - A Natural Resource)

Sheep & Diversified Livestock Group
Animal Industry Division
Alberta Agriculture, Food
and Rural Development
7000 - 113 Street
Edmonton, Alberta T6H 5T6
Phone: (403) 427-4571

City of Fort Saskatchewan
Sheep Grazing Project
Director of Economic Development
10005 - 102 Street
Fort Saskatchewan, Alberta T8L 2C5



Sheep: Ideas for Activity Centres

1. Choose 4 books with the same title and have students read for enjoyment. Then students choose from a variety of task cards to complete Language Learning activities.
2. Use a microscope to analyse and compare natural fibres - cotton, linen, silk, wool, nylon, acrylic, polyester.
3. Turning wool into felt - need a helper at this centre.
4. Art - create a frame for a picture using a yogurt or margarine lid and follow the instructions provided at the centre.
5. Research products from sheep. See how many you can identify. (Much More Than Meat from a Sheep may be used as a related activity)
6. Create a label - care and content labels found on wool clothing.

