

Wet and Woolly

Objective

Students will experiment with some of the properties of wool and compare and contrast them with synthetic fibers, practice vocabulary related to sheep and wool and create art with wool yarn.

Background

Sheep were some of the first animals to be domesticated by ancient people. They have been providing meat and clothing to people for over 10,000 years. Spinning wool into thread began about 5,000 years ago.

Wool is a special natural fiber. It always feels warm and soft. It is very good at keeping out the cold and at warming your skin. Even if your wool sweater gets wet from snow or rain, it will still keep you warm. Wool also wears well and lasts for a long time. One of the best things about wool fabrics is that they are flame resistant, so they are safer to wear.

One sheep produces eight to ten pounds of wool per year, enough to make a man's suit. One pound of wool can make ten miles of yarn. Wool straight from the sheep is called raw wool. Raw wool may go through more than 70 processing steps to assure that fabrics made from the wool are of the highest quality.

Oklahoma sheep growers sheared 30,000 sheep in 2010. From the fleece of these sheep, manufacturers produced about 160,000 pounds of wool. Wool can also be made from the hair or fur of goats, rabbits, llamas and even a semi-wild animal from the Andes Mountains called a vicuna. Wool can have a wide range of natural colors and textures, depending on which animal produced the fleece. To help consumers and spinners identify pure wool, the wool industry designed a trademark symbol. The wool symbol can only be used on products made from pure new wool. The wool symbol is used and recognized all over the world.

Activities

LANGUAGE ARTS ACTIVITY: VOCABULARY

1. Hand out student worksheets.
 - Review and discuss the meaning of the vocabulary words found at the top of the worksheet.
 - Ask students for general definitions.
 - Read and discuss background.
 - Students will read the information on the worksheet silently or read it together as a class.
 - Students will underline the vocabulary words found in the reading.
2. Students will use their own words and as many vocabulary words as possible to tell what they have learned about sheep.
3. Students will use vocabulary words to create their own questions about

Standards

PRE-KINDERGARTEN

P.A.S.S.

Science Process— 1.1,3,4,5

Physical Science— 2.1,2

Creative Skills—4

Oral Language— 1.1

KINDERGARTEN

P.A.S.S.

Science Process— 1.1,2,3,4

Physical Science— 1.1,2

Visual Art— 3.1

COMMON CORE

Language Arts— K.RF.1;

K.RL.4; K.RI.4; L.6

GRADE 1

P.A.S.S.

Science Process— 1.2; 2.1;

3.1,2; 4.3

Physical Science— 1.1,2

Visual Art— 3.2

COMMON CORE

Language Arts— 1.L.5;

1.RF.4; 1.RI.10

GRADE 2

P.A.S.S.

Science Process— 1.2; 2.1;

3.1,2; 4.3

Physical Science— 1.1

Visual Art— 3.2

COMMON CORE

Language Arts— 2.L.4,5,6;

2.RF.4; 2.RI.10

GRADE 3

P.A.S.S.

Science Process— 1.2; 2.1;

3.1,2; 4.3

Physical Science— 1.1

Visual Art— 3.2

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Standards (Cont.)

COMMON CORE

Language Arts—3.RF.3,4;
3.RI.4; 3.RL.1,4,5;
3.L.3,5b

GRADE 4

P.A.S.S.

Science Process—1.2; 2.1;
3.1,2; 4.3

Visual Art—3.2

COMMON CORE

Language Arts—4.RF.4;
4.RL.4; 4.RI.4,10; 4.L.4,6;
4.SL.1,3

Materials

wool gloves

gloves from synthetic
fibers

ice cubes in plastic bags

samples of wool clothing
and other items made from
wool

Wool Day

1. Designate a “wool” day. Encourage students to wear or bring something made of wool to school.
2. Invite a sheep producer to the classroom to explain sheep and wool production.
3. Invite a wool spinner to class to demonstrate spinning wool with a spinning wheel.

sheep.

4. Bring a skein of yarn and unwind it as you ask students why an interesting, usually long, story is sometimes called a “yarn.” Discuss other sayings related to sheep. (

SCIENCE ACTIVITIES: COMPARE AND CONTRAST WOOL WITH SYNTHETIC FIBERS

1. Bring gloves made from wool and gloves made from synthetic fiber (acrylic or polyester) to class.
 - Each student will put a wool glove on one hand and a nonwool glove on the other hand.
 - Sprinkle two tablespoons of water over the palm of each glove.
 - Students will rub their hands together and wait five minutes.
 - Students will predict which hand will feel warmer after five minutes.
 - After five minutes, ask students which hand feels warmer? Which one feels cooler?
 - Students will remove both gloves and place them on separate napkins or paper towels with the wet side of the glove down, against the paper.
 - After a few seconds, students will decide which glove still has more water on the surface. The wool glove should have more, since wool will not lose as much water as manmade fiber.
2. Bring several items of clothing to class.
 - Students will use the experiment above to determine if they are made from wool or a manmade fiber.
3. Conduct the Ice Cube Test.
 - Give each student two tightly-sealed plastic bags, each containing two or three ice cubes.
 - Each student will put a wool glove on one hand and a nonwool glove on the other hand and hold one plastic bag filled with ice cubes in each hand.
 - Lead a discussion based on the following: Which cubes melted first? Which hand felt cold first? Which glove would you want to be wearing if you were playing in the snow?

VISUAL ARTS ACTIVITIES: SPINNING WOOL, MAKE FELT BALLS FROM WOOL

1. Acquire enough clean, combed wool to provide each student with a handful. Show students how they can spin their own wool yarn, using only their fingers.
 - Hold a clean piece of wool in your left hand.
 - Pull out a strip of the wool about one inch wide and thin enough so you can see through the fibers.
 - Roll the strip of wool between your thumb and index finger.
 - Roll the strip only in one direction. Never roll it back and forth.
 - Keep rolling the strip of wool until the fibers wind around each other and form a firm thread of yarn.
 - Wind the yarn around the first two fingers of your right hand.

- Keep drawing out strips of wool, twisting them tight.
 - Wind the yarn on your fingers.
 - In no time there will be a small ball of “homespun” yarn.
2. Make felt balls from wool.
- In one hand take a handful of fleece.
 - Submerge the hand, with the fleece, in a pan of warm, soapy water.
 - Make sure all the fleece gets wet.
 - Using two hands, form the felt ball as though you were making a snowball.
 - You may have to add 1-2 drops of liquid soap.
 - Pass the ball from hand to hand, squeezing very gently.
 - The ball will continue to get smaller and firmer the longer you work it.
 - Add more fleece if you want a larger ball.
 - When it is firm, rinse out the soap and let dry.
 - Make two or three balls, and you are ready for juggling.
 - Invite a juggler to class to teach students how to juggle their felt balls.
 - Smaller balls can be strung on strands of yarn to make bracelets.

Extra Reading

- Ballard, Carol, *Grouping Materials: From Gold to Wool*, Heinemann, 2003.
- Gleason, Carrie, *The Biography of Wool*, Crabtree, 2007.
- Green, Emily, *Farm Animals: Sheep*, Bellweather, 2007.
- Lyon, George Ella, *Weaving the Rainbow*, Atheneum/Richard Jackson, 2004.
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- Millen, CM, and Mary Azarian, *A Symphony for the Sheep*, BookPartners, LLC, 2011.
- Nelson, Robin, *From Sheep to Sweater*, Lerner, 2003.
- Ray, Hannah, *Sheep*, Crabtree, 2008.
- Scotton, Rob, *Russell the Sheep*, Harper Collins, 2005.
- Shaw, Nancy, *Sheep in Jeep*, Sandpiper, 2006.
- Storey, Rita, *Wool and Cotton*, Smart Apple, 2007.

Vocabulary

- bale**—a large bundle of goods tightly tied for storing or shipping
- breeds**
- by-product**—a product or result produced in addition to the main product or result
- ewe**—a female of the sheep or a related animal especially when mature
- fleece**—the woolly coat of an animal
- flock**—a group of animals (as birds or sheep) assembled or herded together
- gland**—a cell or group of cells that makes and secretes a product (as saliva, sweat, bile, or shell) for further use in or for elimination from the plant or animal body
- lamb**—a young sheep especially less than one year old or without permanent teeth
- lanolin**—the fatty coating of sheep's wool especially when purified for use in ointments and cosmetics
- ram**—a male sheep
- shear**—to cut the hair or wool from
- wool**—the soft wavy or curly usually thick undercoat of various mammals and especially the sheep
- yarn**—a natural or manufactured fiber (as cotton, wool, or rayon) formed as a continuous strand for use in knitting or weaving

Name _____

Fleece as White as Snow?

Read the story, and underline the 18 vocabulary words. Some words may appear more than once. Only underline that one that appears first.

Vocabulary Words

ewe	wool	ram	Suffolk	flock	bales	breeds
fleece	Hampshire	lambs	shearing	lanolin	glands	yarns
	Dorset	stearin	by-product	wool		

For thousands of years people have depended on sheep to provide them with milk, meat and clothing. Columbus was the first to bring sheep to the New World. Spanish settlers brought large flocks of sheep when they first made their homes in what is now our state of New Mexico.

A female sheep is called a ewe. The male is called a ram. Baby sheep are called lambs. Sheep grow fluffy wool all over their bodies. This coat is called a fleece. The fleece keeps the sheep warm and dry. Sheep need their hair cut about once a year. This is called "shearing." It takes about five minutes to shear a sheep. A good sheep shearer can shear about 150 sheep in a day.

After the fleece is sheared, it is weighed and bundled up in bales. Then it is taken to a factory to be sorted and washed. The Mother Goose rhyme tells us Mary's lamb had "fleece as white as snow," but fleece is never that white. Oil in the fleece causes dirt to cling to the coat. For a lamb to look really clean, it would have to be bathed every day.

The oil in the fleece is called "lanolin." Lanolin comes from small oil glands found under the sheep's skin. Lanolin glands are similar to the sweat glands you have in your body. Lanolin is used in makeup and lotions. It can also be used to waterproof shoes. We get many other by-products from sheep—leather, waxes for candles, medicines and stearin, which is used to make chewing gum and candy. The inside of a baseball is made by winding 150 yarns of wool into a tight ball.

There are 45 different breeds of sheep in the United States and about 914 different breeds of sheep in the world. Some of the more popular breeds of sheep are Suffolk, Hampshire and Dorset.

Complete this sentence: The wool symbol means _____



The wool symbol