

# Michigan State University Extension

## Tollgate Farm and Education Center

### ***SHEEP TO SWEATER***

**Big Idea:** To explore the process of how the wool of a sheep becomes an article of clothing, such as a sweater.

**Big Questions:** How does wool keep us warm? Why have humans chosen wool as an effective fiber for producing sweaters? (Investigating special properties of wool, discovering why we use wool to produce sweaters, understanding the interdependence of humans and animals)

#### **Michigan NGSS Performance Expectations:**

<a href="#"><u>K-LS1-1</u></a>	Use observations to describe patterns of what plants and animals (including humans) need to survive.
<a href="#"><u>K-ESS2-1</u></a>	Use and share observations of local weather conditions to describe patterns over time.
<a href="#"><u>1-LS1-1</u></a>	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, growth, and meet their needs.
<a href="#"><u>1-LS3-1</u></a>	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
<a href="#"><u>2-PS1-1</u></a>	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
<a href="#"><u>2-PS1-2</u></a>	Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
<a href="#"><u>3-LS2-1</u></a>	Construct an argument that some animals form groups that help members survive.
<a href="#"><u>3-LS3-1</u></a>	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organism.
<a href="#"><u>3-LS4-3</u></a>	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
<a href="#"><u>4-LS1-1</u></a>	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

**Common Core ELA and Math Standards:**

ELA-LITERACY. SL.K.1a-b	Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges.
ELA-LITERACY. SL.K.2	Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
ELA-LITERACY. SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
ELA-LITERACY. RI.1.6	Distinguish between information provided by pictures or other illustrations and information provided by the words in a text.
ELA-LITERACY. SL.1.1a-c	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.
ELA-LITERACY. SL.1.3	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
ELA-LITERACY. SL.2.1a-c	Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
ELA-LITERACY. SL.2.3	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
ELA-LITERACY. SL.3.1a-d	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly. a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). c. Ask questions to check understanding of information presented, stay on topic,

	<p>and link their comments to the remarks of others.</p> <p>d. Explain their own ideas and understanding in light of the discussion.</p>
ELA-LITERACY. SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
ELA-LITERACY. SL.4.1a-d	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.</p> <p>a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</p> <p>b. Follow agreed-upon rules for discussions and carry out assigned roles.</p> <p>c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.</p> <p>d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.</p>
ELA-LITERACY. SL.5.1a-d	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher- led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing their own clearly.</p> <p>a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.</p> <p>b. Follow agreed-upon rules for discussions and carry out assigned roles.</p> <p>c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.</p> <p>d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.</p>

**Content Outcomes:**

- To explore the scientific processes involved in the production of a sweater.
- To recognize and explore connections between how the growth of wool as a covering is an inherited trait which helps a sheep survive, and how we as humans can use wool to maintain warmth as an essential part of our survival.
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**Assessment:**

Revisit the big question at the end of the program and discuss, in pairs, small groups, or as a large group. What new understandings have students gained? Are they able to describe the process of how a sweater is produced from the wool of a sheep? What makes wool special? How did you think like a scientist to find out?

**Program Introduction**

Welcome to Sheep to Sweater at Tollgate Farm! We'll be going on an adventure today to solve a mystery. *Why have humans chosen wool as an effective fiber for producing sweaters?* (Show wool sweater.) First, we'll interact with our fibrous friends, the animals whose coverings can be used to make clothing. We'll observe the shearing of a sheep. We'll also have opportunities to work closely with wool to figure out what makes it so special.

**Tollgate would like to acknowledge that the land we are meeting on today is the original homelands of the Anishinaabe tribal nations. We owe a debt of gratitude to the people who first lived on this land. We honor and respect the many diverse indigenous peoples still connected to this land on which we gather.**

### **Rotations:**

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| ● Meet Our Fibrous Friends                 | <i>Inside Animal Barn</i>                      |
| ● Sheep Shearing                           | <i>Outside Animal Barn</i>                     |
| ● Working with Wool I: Felting Bracelets   | <i>Activity Center, Lower Barn or Pavilion</i> |
| ● Working with Wool II: Spinning & Carding | <i>Activity Center, Lower Barn or Pavilion</i> |

### **Teacher Resources**

Background Information:

- "From Fiber to Fabric" by Utah State University Cooperative Extension

[http://extension.usu.edu/files/publications/factsheet/FC\\_Clothing&Textiles\\_2012-29pr.pdf](http://extension.usu.edu/files/publications/factsheet/FC_Clothing&Textiles_2012-29pr.pdf)

Children's Literature:

- *Red Berry Wool* by Robyn Eversole
- *Charlie Needs A Cloak* by Tomie dePaola
- *Weaving the Rainbow* by George Ella Lyon
- *The Goat in the Rug* by Charles L. Blood

# **CURIOSITY PHOTOS**

Following are photographs and questions intended to inspire curiosity and wonder throughout the days leading up to your Tollgate visit.

***Where have you seen something like this before?***



***Do these sheep look the same? Why or why not?***



***How are people and animals working together?***



***Who is he and what is he doing?***



***What is she doing? What do you think she is making?***



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