

Lesson Plan: Fibers

Objective:

Students will discover which plants and animals provide fibers for clothing.

Outcomes: Students will...

- Gain tactile experience with the four main types of natural fibers
- Present and support a hypothesis based on observation

Common Core Standards Addressed:

4th Grade Standards:

English Language Arts → Speaking & Listening

- CCSS.ELA-Literacy.SL.4.1
Engage effectively in a range of collaborative discussions with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- CCSS.ELA-Literacy.SL.4.1D
Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

English Language Arts → Writing

- CCSS.ELA-Literacy.W.4.1
Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

(Optional Extension Activity):

- CCSS.ELA-Literacy.W.4.7
Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- CCSS.ELA-Literacy.W.4.8
Recall relevant information from experiences or gather relevant information



from print and digital sources; take notes and categorize information, and provide a list of sources.

- CCSS.ELA-Literacy.W.4.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.

5th Grade Standards:

English Language Arts → Speaking & Listening

- CCSS.ELA-Literacy.SL.5.1
Engage effectively in a range of collaborative discussions with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
- CCSS.ELA-Literacy.SL.5.1D
Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

English Language Arts → Writing

- CCSS.ELA-Literacy.W.5.1
Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

(Optional Extension Activity):

- CCSS.ELA-Literacy.W.5.7
Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- CCSS.ELA-Literacy.W.5.8
Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.



- CCSS.ELA-Literacy.W.5.9
Draw evidence from literary or informational texts to support analysis reflection and research.

Items Used:

- Raw fibers (cotton, flax, wool, silk)
- Fabric swatches
- Writing prompt (on disk)

Preparation:

- Print enough copies of the writing prompts for each student

Lesson:Part 1, Raw Fiber: Where did it come from?

1. Students inspect the four different types of raw fiber. They then do a writing exercise in which they guess whether each fiber comes from a plant or an animal, and support the hypothesis with observations.
2. Go over the answers using the PDF file on the disk, starting a discussion in which students state their observations and why they thought each fiber was from a plant or an animal.

Videos we recommend:

“Flax Processing at the Frontier Culture Museum”

<https://www.youtube.com/watch?v=FzTMH5NdwWY>

“Shearing sheep with blades (hand shears)”

<https://www.youtube.com/watch?v=G4u1dcmsZ7s>

Part 2, Fabric Matching Game

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1. Set out the four raw fibers, either on different tables or different parts of a table.
2. Spread out the numbered fabric swatches, OR hand out 1-2 to each student.
3. Students match their fabric swatch to the raw fiber it came from. They can do this one at a time, or in pairs, or in groups/teams, as the teacher deems appropriate.
4. Consult the answer key (on disk).

Lead a discussion about the students' observations of the fabric. Some raw fibers are better than others for different things. For example, silk and wool take dye very well and you can dye it a darker color than most other fibers. Cotton is a good fabric to use for printing, so you can see shapes and colorful designs printed on it, like a rubber stamp. Linen is better for solid colors and stripes, and it is difficult to dye linen a dark color using 18th century dyes. Linen thread also has little bumps in it that show up in the fabric.

Students may ask about how people got the different colors in the 18th century. Dyeing is not a topic we go into in this program, but the dyes they used at the time were all made from plants, animals, or minerals. Here is a brief description of how to dye the different patterns:

- Dyeing a solid color meant making a dyebath like you would a cup of tea: soak the plant, animal, or mineral in hot water until the color comes out in the water; then, soak the fabric in the water and it absorbs the color.
- Dyeing stripes or checks meant making a dyebath as above, but dyeing the threads before weaving them into cloth.
- Dyeing shapes and patterns was like using rubber stamps: dip the stamp (made of wood or metal) in the dye, then press it on the fabric.

If your students would like to know more, we recommend this video about 18th century dyes by Colonial Williamsburg:

"Using Herbs as Dye -- 18th-century Garden Techniques"
<https://www.youtube.com/watch?v=-VM4Yi5NtEY>



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Part 3, Optional Research Project

Allow students, singly or in groups, to select one or more of the raw fibers. They then undertake a research project culminating in a presentation on the life cycle of their chosen plant or animal. Research can take place with books or the Internet, and the presentation can include multimedia components.



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