Sock Origins

Companion Text: I Lost My Sock, by Lin Jakary & Ryan Olson
Subject Area & Grade Level: Science, 4th Grade
Materials: Internet access and/or library resources

Objectives

After this lesson, students will be able to:

- Differentiate among properties of materials used to manufacture socks
- Describe origin of sock materials in the natural world
- Evaluate the environmental impact of sock manufacturing

Staging Activity

Read the story once through without stopping. Then, revisit a picture of a sock from the story, such as on pages 5 or 23, and ask students if they can tell from the picture what type of sock it is, and what type of material it is made out of. (Cotton tube sock) Then, ask if all socks are cotton tube socks, or "sports socks" like the ones in this story. (No) Finally, ask students to work with a partner and list as many types of socks and materials used to make socks as they can think of. Suggest that they look around the room to get ideas.

Core Activity

Break students up into 6 groups and assign each of them a type of material used to manufacture socks: cotton, wool, nylon, silk, polyester, and spandex. Explain that different materials have different properties and therefore different uses. Have each group research their material as homework or during a time when the class has access to the internet or library resources, and complete the appropriate row on the worksheet below. Then, have each group present their findings to the class, and ask all students to complete their worksheets based on the information shared by their peers. Use the attached Answer Key (though not exhaustive) to fact-check the information presented, and to clarify any incorrect data with the class.

Extension

Have each student choose one material, and make an argument for or against its use in sock manufacturing, given what they have learned about the environmental impact of that material. Arguments may touch on the debate surrounding organic cotton and wool production, and the "rights" of silkworms, as well as the emergence of "greener" clothing materials, such as hemp, linen, and recycled polyester. Allow time for additional research if necessary. Their arguments could be written in essay form, drawn as comics or print advertisements, or acted out as television commercials.

Type of Sock	Natural or Manufactured	Features	Sock Applications	Origin	Environmental Impact
Cotton					
Wool					
Nylon					
Silk					
Polyester					
Spandex					

Answer Key

Type of Sock	Natural or Manufactured	Features	Sock Applications	Origin	Environmental Impact
Cotton	Natural	Soft, absorbs moisture, allows air flow around foot	Sports, prevention or curing of fungal infections	Cotton plants	Pesticides used to grow cotton cause widespread negative effects on human health.
Wool	Natural	Retains warmth if wet, durable	Camping, fishing, cold-weather activities	Sheep	Insecticides & fungicides used on sheep harmful to humans.
Nylon	Manufactured	Delicate, stretchy	Women's hosiery	Coal and water	Not biodegradable. Production creates the greenhouse gas nitrous oxide.
Silk	Natural	Slippery	Hiking, prevention of chafing or blisters. Thin silk socks often used under thicker socks.	Silkworm cocoons	Silkworms killed in production process; bred only to produce more cocoons.
Polyester	Manufactured	Easy to launder	Can be blended with other materials to reinforce sock strength.	Liquefied petroleum gas	Not biodegradable. Production uses up a lot of water. Often treated with formaldehyde.
Spandex	Manufactured	Strong, stretchy	Support products, such as ankle or foot braces	Gaseous or liquid hydrocarbons & water	Not biodegradable. Production solvents negatively impact environment.