

Wool, Water, and the Industrial Revolution

The industrial revolution started in Great Britain in the mid-1700s. Technology advancements lead to a boom in textile production and rapid industrial growth. Before the start of the Industrial Revolution, cloth was made on a small scale and mostly at home. The textile industry in American began in New England during the late 1700s. By 1820, textile production in Maine was going strong, powered by Maine rivers. But, let's back up! What is a **textile**? We all use textiles every day. People use textiles to make clothing, towels, sheets, tablecloths, carpets, boat sails, flags, and many other things. Textiles are made from fibers, like wool, cotton, flax, or silk. Yarn, thread, or rope is knit, knotted, or woven into fabric or cloth.



Cotton



Silk



Wool



FUN FACT: the word “textile” comes from the Latin word, *textilis*, and the french term, *texere*, both meaning to weave.

Let's look more closely at warm and fuzzy wool! Wool production in Maine has been around for centuries. Since the 1780s and even earlier, farmers in Maine and New England have been processing raw wool into usable textiles. Wool is a natural fiber that comes from sheep.

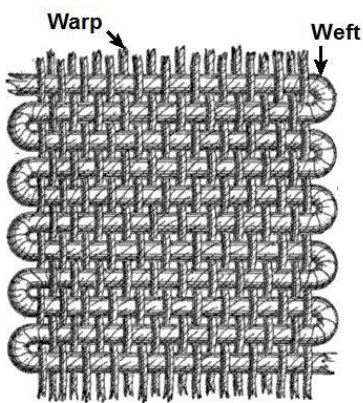
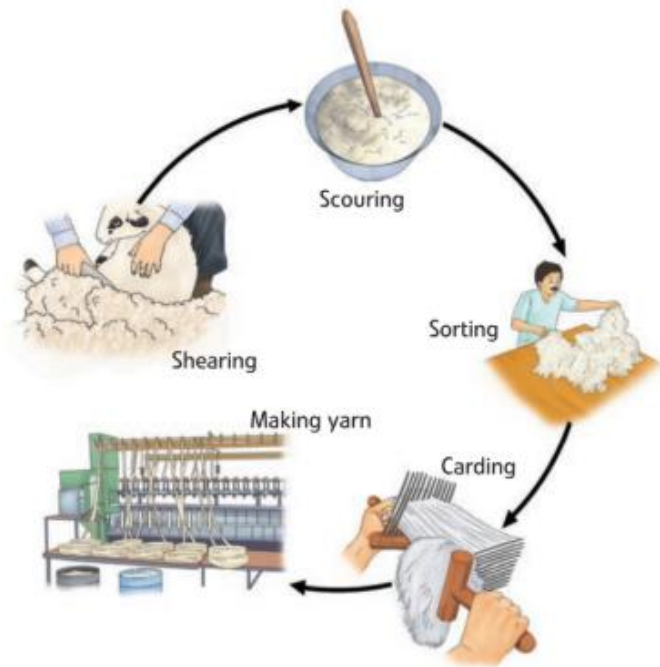
Wool fibers **are hygroscopic**, meaning they can hold water without feeling wet, as opposed to cotton, which will drip forever until it's dry. The fibers also retain heat, so if your wool socks are wet, they still keep you warm! If wool fibers



are stretched, they hold their shape. Wool clothing lasts for years. Durability in clothing was a necessity two hundred years ago, since fabric was expensive. Before the introduction of woolen mills, most of the work was done at home. Whole families participated in making clothes, from tending sheep to spinning yarn, weaving cloth, and sewing. The process was very slow. Each step was done by hand using specialized tools.

To make wool yarn and fabric, first, you need raw wool. Sheep are sheared in the spring, which allows the sheep to be comfortable in the summer heat. Unlike dogs and cats, sheep can't shed their winter coat, so humans help them out. Next, the raw wool is sorted based on quality and color. Wool then goes through a series of steps to become a finished product:

1. **Scouring:** preparing and washing raw wool to remove grease and dirt
2. **Picking:** removing the burrs, dirt, and sticks from the wool
3. **Carding:** detangling and combing wool fibers, so they all line up in one direction
4. **Spinning:** twisting the combed fibers to make yarn

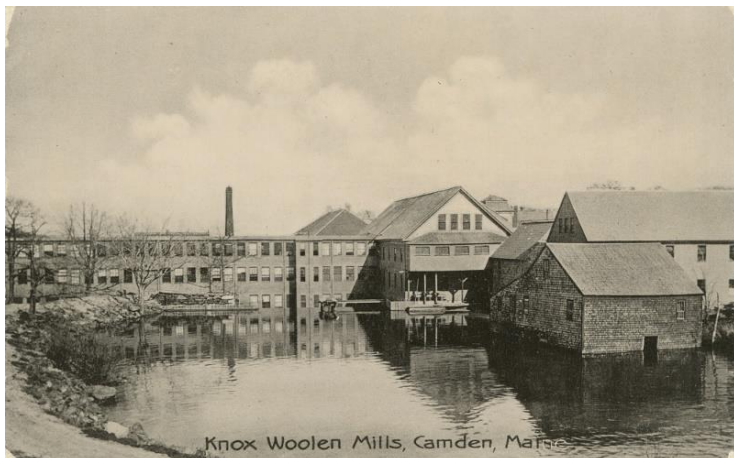


5. **Weaving:** interlacing two sets of threads at right angles to form cloth, usually on a loom
6. **Fulling:** beating, shrinking, and felting the cloth
7. **Napping/Shearing:** raising the fibers on the cloth's surface and shearing them for a smooth finish

Improved machinery allowed factories create finished fabric much more quickly. Power looms for weaving wool were in heavy use by 1841 and significantly reduced the cost of wool cloth. In Maine, industrializing the woolen industry was slower than in other parts of New England. In the late 1840s, mills began to pop-up on rivers such as the



Kennebec and Androscoggin. Water-powered mills and factories were positioned carefully along the rivers to take advantage of the swiftly flowing water and, more importantly, to use the water's weight to turn mill wheels and turbines. Remember, this is before electricity!



By the middle of the century, families no longer had to spend time spinning and weaving. The textile mills and factories provided a wide, affordable variety of textile products. For many decades the industry prospered. The factories were an important source of jobs. People moved from farms to growing towns and cities to work in the factories and the many

support businesses that grew up around them. Immigrants from Canada, Ireland, and Europe were recruited to keep up with the demand for inexpensive labor. Children as young as 8 and 9 years old got jobs in the mills. Production skyrocketed during the Civil War and World War I. Mainers, in particular, knew the value of wool products. They stood up against water, wind, and snow and kept the warmth in.

Today, wool clothing and accessories are still very popular. Most retailers and manufacturers produce these items using a blend of wool and other fibers to make a less expensive product. These products are mainly manufactured outside of the United States. Woolen mills and factories are nearly gone in America. But, the industrial revolution completely changed the way people work and live. The commercial and economic systems created by the industrial revolution live on today. Wool yarn, blankets, and sweaters made by Maine craftspeople can still be found in small shops, agricultural fairs, and on the internet. Nothing is better than a wool sweater from Maine!



Vocabulary Guide

Natural Fiber: Not human-made, a material that is natural to Earth

Raw Wool: Wool that has not been processed, or fresh wool

Shearing: The process of shaving wool off of sheep

Hygroscopic: Absorbing water or moisture from the air

Wool Mills: Mills, places of production, designed to process raw wool

Woolen Factories: a place where finished wool-based products are manufactured

Production: The process, or steps, of making an item

Industrialization: The process of introducing machinery to make the production of a product faster and more efficient

Industry: An organized group of people completing a specific job for a business (i.e., in the wool industry, people making or manufacturing wool items for sale)



Video: Check out 19th-century tools and objects from the Maine State Museum's Education Collection by visiting this link: <https://www.youtube.com/watch?v=coCHaC98Xu8>

Reflection & Discussion Questions:

- How did industrialization change the way people worked in Maine?
- Looking at the steps for producing woolen textiles, are there steps that seem difficult? Are there any steps that seem easy?
- Would you try making your own woolen textiles? Why or why not?
- What role do you think children had in the production of woolen products? At home? In the factory?

Take 5-15 minutes to reflect on these questions. This can be a written/solo reflection, or you can talk to a friend, family member, or teacher. If you choose to speak with someone, make sure you take the time to listen to their thoughts and ideas and find the similarities and differences between them their ideas and yours.

Additional Resources

See how wool is processed today in this video, compare how this is different or similar to how wool was processed in 19th century Maine mills and factories.

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

Check out this NY Times photographic essay about caring for sheep on a cluster of islands northeast of Acadia National Park.

<https://www.nytimes.com/2020/06/08/travel/lens-sheep-island-maine>.

Today, Australia is the top producer of wool globally, and the USA is the third-largest producer. Watch this video to visit an Australian sheep farm and learn more about how raw wool becomes a sweater. <https://www.youtube.com/watch?v=U7Tw4pqyhck>