



# Fabulous Fibers: The Chemistry of Fabrics!

By Sara M. Delgado Rivera

**W**hat does chemistry have to do with fabric? The answer is more than lab coats!

Think about the fabric that makes your shirt. Notice the strings that are woven or knitted together to make the fabric. These strings are called yarns. Each yarn is made of many fibers twisted together. Each fiber is made of very long molecules called **polymers** ... and that means chemistry is involved! Like string and fibers, polymers have a very long and narrow shape that makes them flexible. Not all polymers can become fibers, but all fibers are made of polymers.

## Fibers from Nature

For thousands of years, people have been collecting and using fibers from plants and animals to make clothes and other textiles. Even today, people collect fibers by shearing wool off animals, unraveling cocoons, and pulling soft fibers out of plants. These fibers and the polymers that make them are fully formed in nature. So, the fabrics made with these fibers are called **natural fabrics**. Cotton, linen, silk, wool, cashmere, and burlap are all examples of natural fabrics.



## Fibers Invented by People

Nearly 100 years ago, chemists invented new polymers that could be formed into fibers, yarns, and fabrics. These fiber inventions started with natural resources, such as petroleum, and were changed using processes called **chemical synthesis**. This chemistry know-how allowed people to build polymers that can be pulled into extremely long fibers. Fabrics made from these fibers are called **synthetic fabrics**. Nylon, polyester, and acrylic are all synthetic fabrics.

## Explore the Chemistry of Fabrics!

Inventions and discoveries continue to be made in the fields of textile chemistry and engineering, including ways that use fewer natural resources and create less waste. As you read the articles in this magazine, you will learn about fabrics that protect people and make life more comfortable and convenient for them. You will even find out how forensic scientists test fibers to help solve crimes. The activities will have you testing your own clothes (without harming them), inspecting a nature-inspired invention that you might find in your own home, and coloring yarn. Celebrate the chemistry of fabrics as you investigate, explore, and make your own discoveries about fabulous fibers!

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