

COTTON SCIENCE AND SUSTAINABILITY

Cotton Farming: Science and Technology (Grades 5-8)



Dear Educator,

It's spring, and farmers all over America are busy caring for new crops. Agriculture is an important industry in America and, while students may be familiar with fruits and vegetables grown on farms, they may not realize that clothing can get its start on farms as well. Cotton is a favored fabric when it comes to jeans and other comfortable clothing, and it is one of the most important crops in America. In fact, our country is one of the world's leading exporters of cotton.

In this activity, students will virtually "meet" farmers who grow cotton and researchers who find ways to make cotton production more efficient and sustainable. In the field and in the lab, these professionals are dedicated to caring for the land, while producing the world's most popular natural fiber. Learning about the work they do will allow students to make real-life connections between the cotton clothing they wear and the science that helps produce it.

Use this activity as a stand-alone science lesson or as a supplement to the other lessons in the **Cotton Science and Sustainability** program, available at ymiclassroom.com/cotton, made possible by Cotton Incorporated, the not-for-profit cotton research and promotion company. In addition, be sure to check out the interactive whiteboard game at the same link for a fun and educational activity you can do with your whole class or in small groups with laptops or tablets. Use it as a preview, a review activity, or even as an informal assessment.

Please feel free to share these materials with other teachers in your school. The materials are copyrighted, but you may make as many copies as necessary to meet your students' needs. Then, please comment online at ymiclassroom.com/feedback-cotton to let us know your thoughts on this program. We depend on your feedback to continue providing free educational programs that make a real difference in students' lives.

Sincerely,
Dr. Dominic Kinsley
Editor in Chief
Young Minds Inspired



Questions? Contact YMI toll-free at 1-800-859-8005 or by e-mail at feedback@ymiclassroom.com.

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Target Audience

Students in grades 5 to 8 and their families

Program Objectives

- Help students learn about and evaluate the properties and benefits of cotton
- Teach students about cotton's value to the environment as a natural fiber
- Explore the versatility of cotton
- Introduce students to the people who grow and research cotton

Program Components

- This one-page teacher's guide
- One reproducible activity sheet

More Cotton Science and Sustainability Materials Online

Visit ymiclassroom.com/cotton for:

- Additional activities: *The Fiber Factor*, *Break It Down!*, *Cotton and the Planet*, *Growing Cotton*, and *Collect Denim for Earth Day!*
- A classroom poster with fun, interesting cotton facts
- *Cotton: From Farm to Fashion to Food*, an interactive whiteboard activity
- An online feedback form at ymiclassroom.com/feedback-cotton
- Common Core and Next Generation Science Standards alignment chart

How to Use This Program

Make copies of the activity sheet for your students, review the videos listed, and explore the additional resources online.

Activity

Cotton Farming: Science and Technology

When students picture a farm, what do they see? Ask students to share their ideas, then ask them if they knew that some farms today use tractors equipped with state-of-the-art technology, including a GPS system, that are worth more than half a million dollars.

Cotton farms use advanced equipment to grow and harvest cotton more efficiently. But producing cotton is also about using farming techniques that support sustainability. Explain that sustainability means doing something



in a way that conserves and protects natural resources. As students will learn, cotton farmers work closely with researchers to make sure they are using the latest and best sustainable farming practices.

Group students into small teams and pass out the activity sheet. For Part 1, which provides links to five videos, assign a different video to each group. (Depending on the size of your class, two groups may research the same video.) Explain to students that they will have a virtual visit with their assigned cotton farmer or researcher to learn more about their work to benefit the cotton industry, and then will answer questions about their video. Use laptops, tablets, or a computer lab. If you don't have access to these, use a projector to show one of the videos to the entire class, and have them answer the questions with a partner.

When students are finished, ask them to share the answers to the questions about their assigned video with the class. Point out that each video is a success story in using innovations in cotton farming to improve cotton production and practice sustainability.

For Part 2 of the activity, challenge students to work individually to imagine an innovation that will help cotton farmers. It could be a new machine, a new type of pest control, or even a new variety of cotton!

Extension: Challenge students to use the information they've learned to write a brief employment ad (50 words or less) for a cotton farmer or researcher position. Students should focus on key skills they think would be required for someone seeking a position that will support innovative and sustainable cotton production.

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ACTIVITY

Cotton Farming: Science and Technology



REPRODUCIBLE MASTER G5-8

You may have a favorite cotton t-shirt or pair of jeans.

And you may know that cotton is used to make dollar bills, and that cottonseed oil is used as an ingredient in breads, cereals, and snacks. But do you know what it takes to grow the cotton needed to produce all these things, or about the science and technology involved?

Part 1: Go on a virtual visit with cotton farmers and researchers to learn more about their work and how they are helping the cotton industry.

Your teacher has assigned you a video to watch. Check off the box for your video.

Follow the link to navigate to your video:

☐ **Dahlen Hancock, Texas**

Dahlen describes how technology enables the farmer to take care of the soil and support crop sustainability.

Video link: <https://youtu.be/8VwgpEpaX0E>

☐ **Rich Lindsey, Alabama**

Rich uses data and new technology to optimize a sustainable operation.

Video link: <https://youtu.be/HTU5QBy5nU4>

☐ **Jimmy Webb, Georgia**

Jimmy Webb explains how cotton farming has evolved and become more efficient through technology and cover crops, which help to improve the land.

Video link: <https://youtu.be/0fYyCIdGd0E>

☐ **Shane Isbell, Alabama**

Shane works to find ways to reduce land and water usage in his farming practices.

Video link: <https://youtu.be/kIZju-jlFeQ>

☐ **Audrey Gamble, Alabama**

As a soil science professor at Auburn University, Audrey spotlights practices such as regenerative agriculture.

Video link: https://youtu.be/8df_yuU9zsw

Watch your assigned video with your group, and then answer these questions.

1. What role does this person play in the production of cotton?

2. What type of challenges do you think this person faces in their work?

3. How does technology impact this person's job or role?



Part 2: Get creative! Use your imagination to design an innovation that will help cotton farmers grow cotton efficiently and sustainably. It could be a new machine, a new type of pest control, or even a new variety of cotton. Write about your innovation in cotton production on the back of this sheet or on a separate piece of paper.