



## **The Story of Cotton**

**Audience:** 9-12 grade

**Activity Length:** 1-2 class periods

### **TEKS:**

- ELA:
  - English I
    - 1.A, 1.B, 1.C, 1.D, 5.B, 5.D, 5.E, 5.H, 5.I
  - English II
    - 1.A, 1.B, 1.C, 1.D, 5.B, 5.D, 5.E, 5.H, 5.I
  - English III
    - 1.A, 1.B, 1.C, 1.D, 5.B, 5.D, 5.E, 5.H, 5.I
  - English IV
    - 1.A, 1.B, 1.C, 1.D, 5.B, 5.D, 5.E, 5.H, 5.I
- Science:
  - Biology §112.42.c
    - 1.A, 4.A, 4.C
  - Chemistry §112.43.c
    - 1.A, 4.A, 4.C
  - Environmental Systems §112.50.c
    - 4.B, 4.C
  - Earth Systems Science §112.49.d
    - 4.B, 4.C
- Social Studies:
  - World Geography Studies §113.43.c
    - 8.A, 19.C
  - United States History Studies Since 1877 §113.41.d
    - 26.B
  - World History Studies §113.42.d
    - 27.A
- Agriculture, Food, and Natural Resources:
  - Principles of Agriculture, Food, and Natural Resources §127.30.d
    - 1.B, 5.B, 5.C, 5.F, 8.A, 9.A, 11.B, 11.C, 11.D
  - Food Processing §130.16.c
    - 1.B, 3.A, 3.B, 6.E
  - Horticulture §127.54.d



- 1.B, 8.A, 8.E
- Advanced Plant and Soil Science §130.25.c
  - 1.B, 2.A, 2.B, 4.A, 4.B, 8.B, 12.F, 12.G, 15.E, 15.F, 15.G, 16.A, 19.A

**Objectives:**

- Students will develop an understanding of the phases of cotton production
- Students will exercise research and communication skills to gather information and draw conclusions

**Materials Needed:**

- Internet access (computer, cell phone, or iPad)
- Student answer sheets
- Printed picture cards

**Introduction:**

As students enter the classroom, direct their attention to the riddle on the whiteboard. Give them a few minutes to discuss and think of an answer.

*I am made by nature, soft as silk; a puffy cloud, white as milk; snow tops this tropical crop; the dirtiest part of a mop. What am I?*

The answer is cotton! Cotton has been around for at least 7 millenniums. Many times, we think about cotton in our clothing or cloth items, but today we are going to explore the many uses and learn how cotton impacts our world.

There are two types of fibers, natural and synthetic, used in textiles to produce cloth or fabric. Cotton is a natural fiber, which is more comfortable, biodegradable, and breathable.

**Lesson Outline:**

Interest Approach

In this activity, students will be given pictures that represent everyday items. The purpose of this activity is for students to determine whether the product is made from cotton or not.



1. Inform the class they will be competing in a relay to determine which items contain cotton.
2. Break the class into two groups and have them line up on the opposite side of the classroom.
3. Place baskets labeled "cotton" and "Not Cotton" on one side of the classroom. Make sure there is ample space for students to relay across the room.
4. Place picture cards face down on a table at the front of each line. Instruct students that they will select the top card and determine if it is made from cotton or not. Then they will run to the baskets on the opposite side of the room and place the card in the correct basket (Cotton or not cotton). When the runner has returned, the next person in line will follow the same instructions.
5. Check for understanding and begin relay race once students are prepared. Once all picture cards have been sorted have students sit down.
6. Inform students that every product they sorted contains cotton and that it is a very versatile crop.
  - Money
  - Coffee filters
  - Blue jeans
  - Toothpaste
  - Diapers
  - Livestock food
  - Cooking oil
  - Butter
  - Soap
  - Medicine
  - Paint
  - Baseball
  - Fireworks
  - Bandages
  - X-Rays
  - Socks
  - Cotton Swabs
  - Yarn
  - Salad dressing
  - Chips
  - Cookies
  - Fertilizer
  - Fuel pellets
  - Packing materials
  - Shoestrings
  - Pillows
  - Ice cream
  - Books
  - Carpet
  - Baby wipes
7. Display the following discussion questions and have students think individually about how they would respond. After a few minutes, regain attention and take turns sharing thoughts.
  - Think about life without cotton. How would a lack of the crop impact our lives? (Economic/Environmental/Societal)



- Economic- change in industrialization, country wealth, trade, alternate fiber commodities, etc.
  - Environmental- reliance on other fibers (natural or synthetic), loss of a recyclable fiber, possible impact to the carbon cycle, etc.
  - Societal- less comfortable clothing, greater reliance on other fibers, change in global government affairs, etc.
- Why do you think cotton is used in so many products?
8. Close the discussion and share that we will be diving further into the production and processing of cotton.
  9. Pass out The World of Cotton student worksheets. Throughout the lesson, students will fill in the blanks and complete activities as directed.

During this portion, students will review the growth stages of a cotton plant and understand the important role that a farmer plays in production.

### Growing Cotton

The cotton plant is an angiosperm, meaning it is a flowering plant that produces seeds that are encased by a fruit. The fruit of cotton looks a little different than the fruit we often think of. Students will compare their knowledge of plant growth to the growth of a cotton plant.

1. Review the information on *slide 6* of the presentation and have students fill in the blanks on the “Growing” section of their worksheet.
2. Ask the class if they remember the stages of how a plant grows and produces fruit.
3. As students share, write the correct and simplified stages on the whiteboard. Listen for the following keywords: germination, seedling (stem and leaf growth), flowering, fruit.
4. After discussing the stages, have students title each stage on the Plant Growth Stages portion of their worksheet.
5. Before showing the time-lapse video, inform the class they will watch a clip that shows the growth of a cotton plant from seed to cotton boll. While watching, have students simply write down their observations. These observations can include change in color, leaf shape, day of change, etc.)
6. Discuss students’ observations.



7. Display the cotton lifecycle graphic and compare student's observations.

Cotton is a drought-tolerant crop, allowing it to be produced in regions that have dryer climates. Many factors can impact the production of cotton including a variety of environmental and physical challenges. Farmers need to be aware of these challenges and prepare methods of how they will respond to these issues.

1. After introducing the topic above, show the Texas Farm Bureau cotton publication [website](#).
2. Task students with selecting two articles, one published within the last year and another from years past. Students will read the articles and answer questions on their worksheet.
3. Along with making informed decisions, students will support their writing by correctly citing their article. Display *slide 11*, How to Cite a Website, and review how to use MLA, APA, and Chicago formatting. Select one or all formats for students to use while citing their articles.
4. Allow students time to complete activity in the "Growing – Using Sources" portion of their worksheet.
5. Divide students into small groups and have them share their findings, comparing facts and opinions.
6. Discuss the major challenges as a class.

### Harvest

Students will "meet" with a cotton farmer and learn how cotton is harvested. Before students watch the [Cotton: From Dirt to Shirt - Harvesting](#) video from Cotton Inc., review the slides and explain important equipment and terms used throughout harvesting.

1. Use *slide 13* to introduce students to terms and equipment used in cotton harvesting. Students will complete the fill in the "Harvesting – Fill in the Blank" section of their worksheet.
  - Cotton Stripper
  - Cotton Picker
  - Defoliation/harvest aid
  - Module
  - Shredder
  - Gin
2. Once students have an understanding of terminology and equipment, allow students to individually watch the harvesting video and interact with the 360 feature.



3. Continue to the next slides and introduce the multiple methods of harvesting. Explain that farmers need to be aware of guidelines in their counties. Students will continue filling in the blanks on their worksheet.

#### Harvest – County Research:

1. Divide the class into small groups.
2. Assign each group a county in Texas.
3. Each group should use the [website](#) to identify their cotton stalk destruction zone (if the county is in a zone).
  - If the county is not in a zone, why not?
4. Once students identify the zone, research the specific harvest details for that county (i.e. harvest date, harvest aid or no harvest aid, and average yield for that area). Students will write their answers in the “Harvest – County Research” section of their worksheet.

#### Ginning

After the cotton is harvested, it is sent to a gin where it is cleaned and processed into a usable fiber. Students will visit a cotton gin to learn more about the process that takes place.

1. Give students a few minutes to watch [Cotton: From Dirt to Shirt - Ginning](#) and complete the “Ginning – Flow Chart” section of their worksheet.
2. Once everyone has finished watching the video and has filled out their notes, give a minute to review and study their answers.
3. Test their knowledge by playing at least one round of the following review games. You may choose which resource your students are most comfortable with.
  - [Kahoot](#)
  - [Gimkit](#)
  - [Blooket](#)
4. Following the review game, ask students to think about the cotton products they learned about at the start of the lesson. Each of those products went through similar steps to become a usable product.

#### Final Product

Assign each student one product made from cotton. Students will be required to research the product and create a commercial, using padlet.com or another platform that is permitted at your school, to sell and inform the public of the product and how it uses cotton.

- Requirements:



- Commercial must be no more than 2 minutes
  - Uploaded to Padlet with the product name as the subject
  - Use a creative slogan or jingle for your product
  - Tell how cotton is used in the product (Is it made from seed oil, fibers, linters, etc.)
  - Share facts about how the product can benefit the consumer
  - Share facts about the importance of agriculture
5. For this assignment, give students ample time to prepare information and record their commercial. Allow them at least one afternoon they can work on it at home in case they need to use props or other supplies.
6. Commercials should be uploaded by the beginning of the next class period and peers will be given time to watch all commercials and respond appropriately to 6 commercials.

**Sources:**

- [Machine Finder](#)
- [Cotton Inc.](#)
- [Multipro Machines](#)
- [Texas Department of Agriculture](#)
- [Young Minds Inspired: The World of Cotton](#)



## The World of Cotton

Directions: Throughout the lesson, fill in the blanks and complete the activities as directed.

### **Growing – Fill in the Blank**

- Cotton is an \_\_\_\_\_
  - A \_\_\_\_\_ plant that produces \_\_\_\_\_.
- The cotton \_\_\_\_\_ is considered the fruit of the plant, the fibers \_\_\_\_\_ and protect the seeds
- An entire growing cycle takes \_\_\_\_\_!
- \_\_\_\_\_ is the leading state in cotton production, producing \_\_\_\_\_ million bales (2024)
- The United States is the \_\_\_\_\_ largest producer in the world
- Which countries are ahead of the U.S.? \_\_\_\_\_ and \_\_\_\_\_

Plant Growth Stages			
(label each stage and write your observations)			
_____	_____	_____	_____



**Growing - Using Sources**

Directions: Select two articles, one published within the last year and another from years past. Read the articles and answer questions.

**Article One**

1. Write a paragraph summary of the article:

2. What challenges are producers facing and what is the cause?

3. What is being done to combat these challenges? Is there a solution?

In the space below, write an MLA, APA, and Chicago citation for the article you selected.

**MLA-**

**APA-**

**Chicago-**



Article Two

1. Write a paragraph summary of the article:

2. What challenges are producers facing and what is the cause?

3. What is being done to combat these challenges? Is there a solution?

In the space below, write an MLA, APA, and Chicago citation for the article you selected.

**MLA-**

**APA-**

**Chicago-**



### **Harvesting – Fill in the Blank**

- \_\_\_\_\_ - a machine that removes the entire cotton boll, leaves, and branches from a cotton plant
- Cotton Picker- a machine that gathers \_\_\_\_\_ and \_\_\_\_\_ from a standing stalk
- \_\_\_\_\_ - The removal of leaves from the stalk, this can be done naturally through freezing or with chemical application
- \_\_\_\_\_ - compacted cotton used to store and transport cotton from the field to the gin
- Shredder- a machine that breaks down cotton \_\_\_\_\_ into smaller, more manageable pieces
- \_\_\_\_\_ - a machine that separates cotton \_\_\_\_\_ from seeds and other impurities

### **Watch Cotton: From Dirt to Shirt-Harvesting**

- The use of harvest aid for \_\_\_\_\_ is specific to each region
- Destruction of the cotton \_\_\_\_\_ is regulated in some regions due to boll \_\_\_\_\_ eradication
- Boll Weevils are a major \_\_\_\_\_ that feed on the flowers and cotton buds



- Stalk destruction assists to help control the pest by removing \_\_\_\_\_ and \_\_\_\_\_, halting reproduction
- Destruction is not required in counties with \_\_\_\_\_ climates, freezes prevent plant growth

### **Harvest – County Research**

Directions: Use the space below to answer the following questions about your assigned county.

Information can be found on the website below:

<https://texasagriculture.gov/Regulatory-Programs/Cotton-Stalk-Destruction>

Assigned County:

Is your county in a destruction zone, if so, which one?

What method of destruction is used in your county?

Harvest date:

Does your county use harvest aid?

What is the average yield harvested for the county?



### **Ginning – Flow Chart**

Directions: While watching Cotton: From Dirt to Shirt-Ginning, create a flow chart that represents the multiple steps in the ginning process.



*example flow chart*

### **Final Product – Commercial**

Directions: You will be assigned one product made from cotton. Through research, you will discover how that product was made and the role that cotton plays in its production. Using padlet.com, you will create a commercial that will help “sell” your product and inform the public about cottons usage.

Here are your requirements:

- Commercial must be no more than 2 minutes
- Uploaded to Padlet with the product name as the subject
- Use a creative slogan or jingle for your product
- Tell how cotton is used in the product, is it made from seed oil, fibers, linters, etc.
- Share facts about how the product can benefit the consumer
- Share facts about the importance of agriculture







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