The Boll Weevil

Grade Level: 4-8

Lesson Overview

The boll weevil was a highly destructive insect to cotton crops in the South. As a result, Carver introduced crop rotation. Students will learn about monuments including the Boll Weevil Monument, including the Boll Weevil Monument, as well as how cotton and peanut production have changed over the years.

Student Objectives

1. Define boll weevil, explain why it is a beetle, and explain how the weevil is a harmful insect.
2. Describe the benefits of farming multiple crops instead of a single crop.
3. Identify the recovery efforts that helped save farmers in the south from losing everything to the boll weevil.

Materials

- ✓ United States Monuments Worksheet
- ✓ Peanut and Cotton Production Graph Worksheets
- ✓ Boll Weevil Student Information Sheet
- ✓ Boll Weevil Description and Picture

Vocabulary

- **beetle** - any of many insects having biting mouthparts and front wings modified to form hard wing covers that overlie the membranous rear wings when at rest.
- **boll** - the rounded seed pod or capsule of a cotton or flax plant.
- **boll weevil** - a small, grayish, long-snouted beetle of Mexico and the southern United States, with destructive larvae that damage cotton bolls.
- **cash crop** - a crop grown especially for sale and usually being an important source of income.
- **cotton** - a crop grown in warm climates for the fiber surrounding the seeds. The soft, white, downy fiber attached to the seeds of the cotton plant is primarily used for clothing and other textiles.
- **larvae** - the wingless, often wormlike form of a newly hatched insect before metamorphosis.

- **plantation** - a large farm or estate on which crops are raised, often by resident workers.

Background Information

For background information, see the Boll Weevil Information Sheets.

Procedure

1. Use the United States Monuments Worksheet as an interest approach to get students thinking about monuments, boll weevils, and historical agriculture.

2. Use the Boll Weevil Information Sheet to introduce the topics of the boll weevil infestation, agricultural repercussions of this infestation, and ways the infestation problem was solved using the information provided in this lesson and any supplemental materials you might find to use.

3. Peanut & Cotton Production Graph Worksheets may be used to further discuss how life, and production of peanuts and cotton, changed on farms. This worksheet may also be used for evaluation.

Extension Activities

1. The Boll Weevil monument is inscribed with the following sentence:
   "In profound appreciation to the boll weevil and what it has done as the herald of prosperity." Read this to your students and ask the following questions:

   a. What would you make a monument to in your town as a "herald of prosperity"?
   b. Would you have been as appreciative to the boll weevil as the people of Enterprise, AL?

2. Compare and contrast other insect infestations.

3. Have student groups study and present about the life of George Washington Carver. Check out the George Washington Carver lesson for more information and ideas.

4. Write a story about what it would have been like if you lived on a cotton farm when the boll weevils arrived. How would you feel? What changes might occur on your family's farm? This Library of Congress link may give you some ideas to get started. https://www.loc.gov/item/today-in-history/december-11/

5. According to the National Cotton Council, the “Boll Weevil Eradication Program ranks close to Eli Whitney’s invention of the cotton gin as one of the greatest advancements ever for the U.S. cotton industry.” Have students explore more about the research and efforts being utilized. The following website can give you a start. https://www.cotton.org/tech/pest/bollweevil/eradication2.cfm

Additional Resources

1. http://www.agintheclassroom.org/TeacherResources/terra_nova_cotton.shtml Cotton Ag Reader from Illinois Agriculture in the Classroom
2. https://www.loc.gov/item/today-in-history/december-11/ Library of Congress Boll Weevil article
3. https://www.cotton.org/tech/pest/bollweevil/eradication2.cfm Boll Weevil Eradication Program

Standards

Illinois Social Science Standard

SS.G.2.6-8.LC Explain how humans and their environment affect one another.

Illinois English Language Arts Standard

RST 1 Cite specific textual evidence to support analysis of science and technical texts.

The **M**ultidisciplinary **AG**ricultural **I**ntegrated **C**urriculum (mAGic) was created in 2004 under the leadership of the Illinois State Board of Education (ISBE) and the Facilitating Coordination in Agricultural Education Project (FCAE). Funding was made available through the FCAE grant budget from the agricultural education line item of the ISBE budget. This revision, as printed, was developed in April 2021.

These mAGic lessons are designed to bring agriculture to life in your classroom. They address the Illinois Learning Standards in math, science, English language arts and social studies.

Insect mAGic project update writers/reviewers: Rhodora Collins – Dekalb County; Suzi Myers – Kane County; Connie Niemann – Montgomery County; Debbie Ruff – Livingston County; Jennifer Waters – Sangamon County; and Dawn Weinberg – Hancock County.

Name _____

United States Monument Worksheet

Directions: In the space provided after each United States monument, write a reason why you think the monument was built.

1. Washington Monument:

2. Statue of Liberty:

3. The St. Louis Arch:

4. Mt. Rushmore:

5. The Liberty Bell:

6. The Boll Weevil Monument (pictured at right):
   [photo credit Wikimedia Commons]

United States Monuments ANSWER KEY

Directions: In the space provided after each United States monument, write a reason why you think the monument was built.

1. Washington Monument:
   A memorial monument built to honor the first president of the United States, George Washington.

2. The Statue of Liberty:
   The statue was supposed to be built to commemorate the centennial of the American Declaration of Independence (1876) but was not finished in time. It was finally finished in 1886, 10 years late. It is recognized worldwide as a symbol of freedom, liberty, and escape from oppression.

3. The St. Louis Arch:
   The Arch was built to commemorate several events:
   a. **The Louisiana Purchase and the westward movement of American explorers and pioneers.**
   b. **The establishment of the first cathedral and first civil government west of the Mississippi River.**
   c. **The debate over slavery raised by the Dred Scott Case, which was tried in the Old St. Louis Courthouse.**

4. Mt. Rushmore:
   A memorial monument honoring former U.S. Presidents George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln. It was built to increase tourism in the Black Hills region of South Dakota.

5. The Liberty Bell:
   The bell was put into a monument so that people would remember the day it rang (July 8, 1776) to summon citizens to hear the first public reading of the Declaration of Independence. It is widely recognized as a symbol of American freedom and the values of the United States of America.

7. The Boll Weevil Monument (pictured at right):
   [photo credit Wikimedia Commons]
   As a tribute to the boll weevil, an agricultural pest that forced residents of Enterprise, Alabama, to change farming practices and their way of life for the better.

Boll Weevil Student Information Sheet

The boll weevil is a small, grayish, long-snouted beetle of Mexico and the southern United States, with destructive larvae that damage cotton bolls. Like all beetles, the boll weevil has biting/ chewing mouthparts and front wings modified to form hard wing covers that lie over the membranous rear wings when the insect is at rest.

Boll Weevil [photo credit USDA Agricultural Research Service]

The boll weevil had been causing trouble for Mexican farmers who raised cotton for many years before it came to the southern United States. By the early 1800s cotton had replaced rice and indigo to become the leading crop in all the southeastern and Gulf States (Florida, South Carolina, Georgia, Alabama, Mississippi). At this time in history, farmers relied heavily on cotton as it was their only cash crop. Cotton remained popular in the southern United States even after the Civil War (1861-1865), but that would change dramatically later in the century.

In 1892, the boll weevil entered the United States by crossing the Rio Grande near Brownsville, Texas, from Mexico. The boll weevil damaged cotton crops in Texas, Louisiana, and Mississippi and by 1915 it reached Alabama. By the mid-1920s, it had found its way into every cotton growing region of the United States. Many farmers lost all they had to the boll weevil and hated the insect for eating their crops and costing them money and, in some cases, their farms and homes.

However, in a little town in Alabama, called Enterprise, the people made a monument to the boll weevil and dedicated it on December 11, 1919. The citizens of Enterprise realized that the boll weevil had forced them to end their dependence on cotton and made them pursue mixed farming operations and manufacturing. The boll weevil infestation led to the introduction of the peanut as a crop to replace and supplement cotton.

The peanut was introduced to farmers through George Washington Carver of Alabama's Tuskegee Institute. George Washington Carver was a farmer, teacher, and scientist who worked and taught at the institute. He encouraged farmers to plant

peanuts for the good of the soil, which had been depleted of nutrients due to years of growing cotton, and to help farmers avoid the devastation of losing an entire crop to the boll weevils. As more and more farmers planted peanuts, there was a need to find more uses for the peanut. George Washington Carver jumped into researching uses for the peanut plant. By the time he had finished his research, he had developed 300 food and industrial uses for the peanut. This helped farmers a great deal by creating a larger market for selling their peanuts.

George Washington Carver
[photo credit George Washington Carver National Monument]

Boll Weevil Monument
[photo credit: Wikimedia Commons]

The monument to the boll weevil still stands in Enterprise, Alabama, and is thought to be the only monument that pays tribute to a pest. The monument is a statue of a lady clothed in a white flowing gown with her arms held high above her head holding a large boll weevil. The monument is 13 and 1/2 feet tall and is surrounded by a fountain. When the statue, which was built in Italy, was dedicated the monument contained the statue of the woman and not a boll weevil. The weevil was not added to the monument until 1949 when a local artist suggested it and made one for the monument. A few years after the boll weevil was added it was stolen, but a local group replaced it with a new and larger boll weevil. Since then several incidences of theft and vandalism have plagued the statue and the boll weevil, but they have been continually repaired to keep the monument in good shape and a reminder to the progressive thinking of the town's residents.

The boll weevil remains the most destructive cotton pest in North America.

Boll Weevil Description and Picture Student Information Sheet

Boll Weevil

Order: Coleoptera

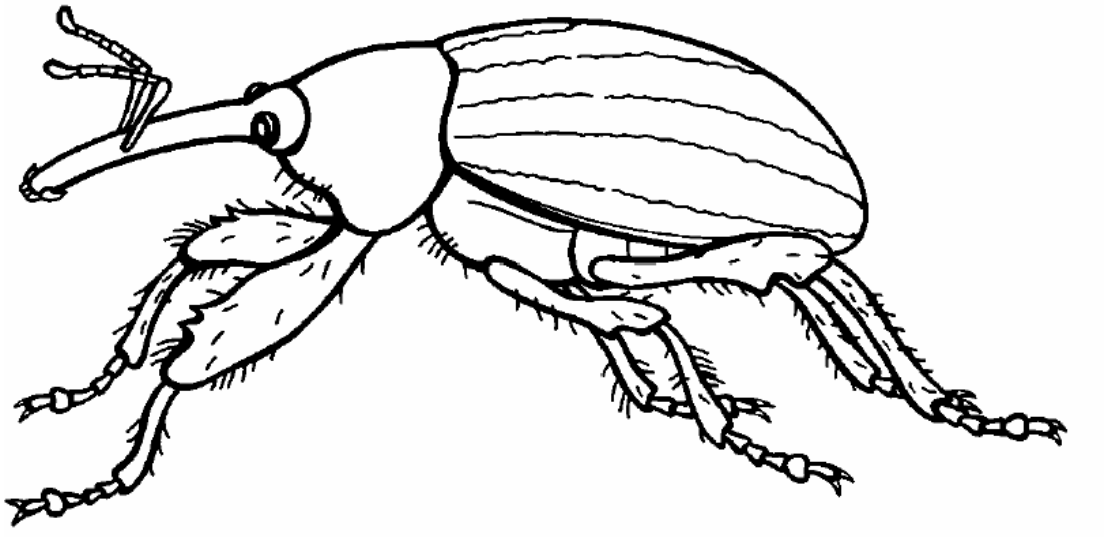
Description: Weevils are a type of beetle that have long tapered snouts with cutting jaws at the tip.

Size: 4-7 millimeters (.125-.25 inches)

Food: Cotton seedpods and flower buds.

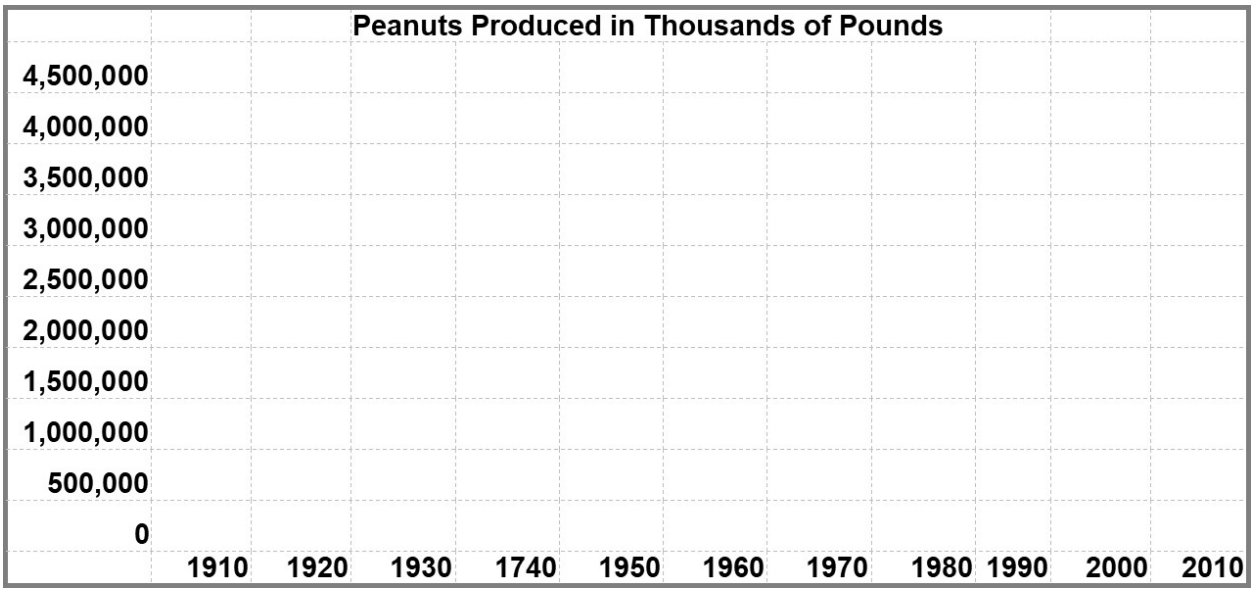
Where it lives: Wherever cotton grows.

Other facts: Accidentally introduced to the USA from Mexico in the 1800s, it has become a major pest of the cotton industry.



Name _____

Peanut Production Graph Worksheet

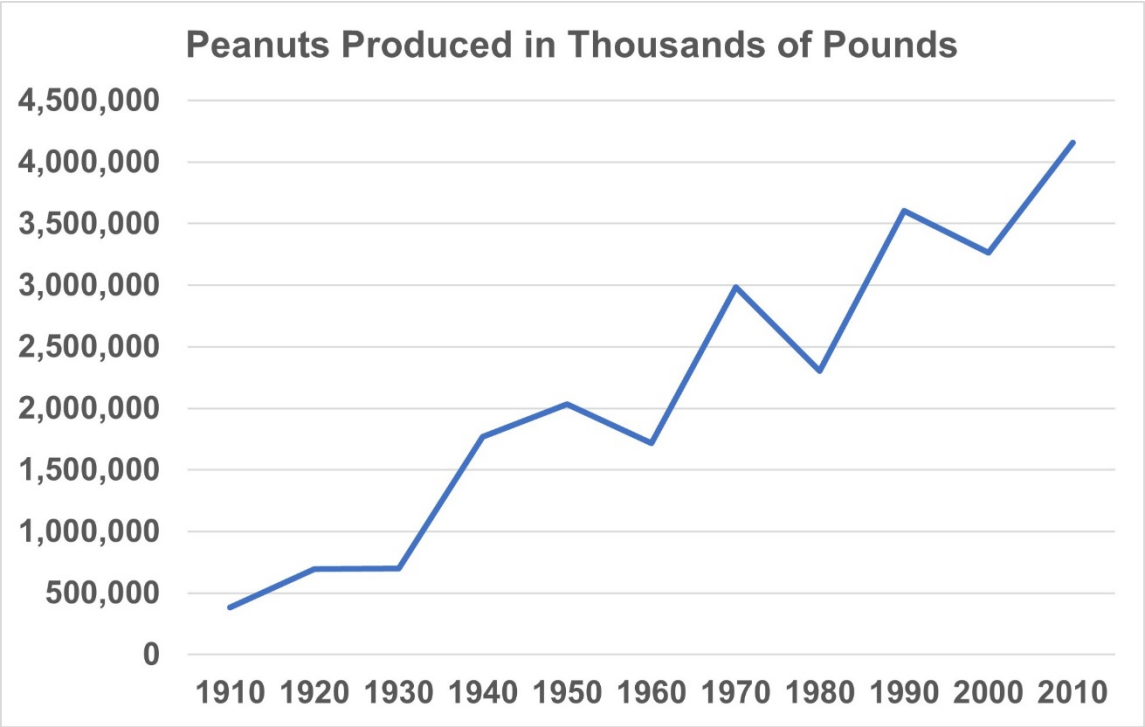


1. Fill out the line graph with the following peanut production numbers.
2. Label both axis on the graph.

Year	Peanuts Produced in Thousands of Pounds
1910	383,875
1920	695,842
1930	697,350
1940	1,766,590
1950	2,035,285
1960	1,718,011
1970	2,983,121
1980	2,302,762
1990	3,603,650
2000	3,265,505
2010	4,156,840

Data from https://downloads.usda.library.cornell.edu/usda-esmis/files/c534fn92g/r781x160h/8w32rq739/croptr20.pdf

Peanut Production Graph Worksheet ANSWER KEY



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Name _____

Cotton Production Graph Worksheet

			Production in Thousands of Bales of Cotton								
20,000											
18,000											
16,000											
14,000											
12,000											
10,000											
8,000											
6,000											
4,000											
2,000											
0											
	1910	1920	1930	1740	1950	1960	1970	1980	1990	2000	2010

1. Use the following data to make a **bar graph** on cotton production.
2. Label both axis on the graph.

Year	Production in thousands of bales of cotton
1900	10,124
1910	11,609
1920	13,429
1930	13,932
1940	12,566
1950	10,014
1960	14,272
1970	10,192
1980	11,122
1990	15,505
2000	17,188
2010	18,102

Data from https://downloads.usda.library.cornell.edu/usda-esmis/files/c534fn92q/r781x160h/8w32rq739/croptr20.pdf

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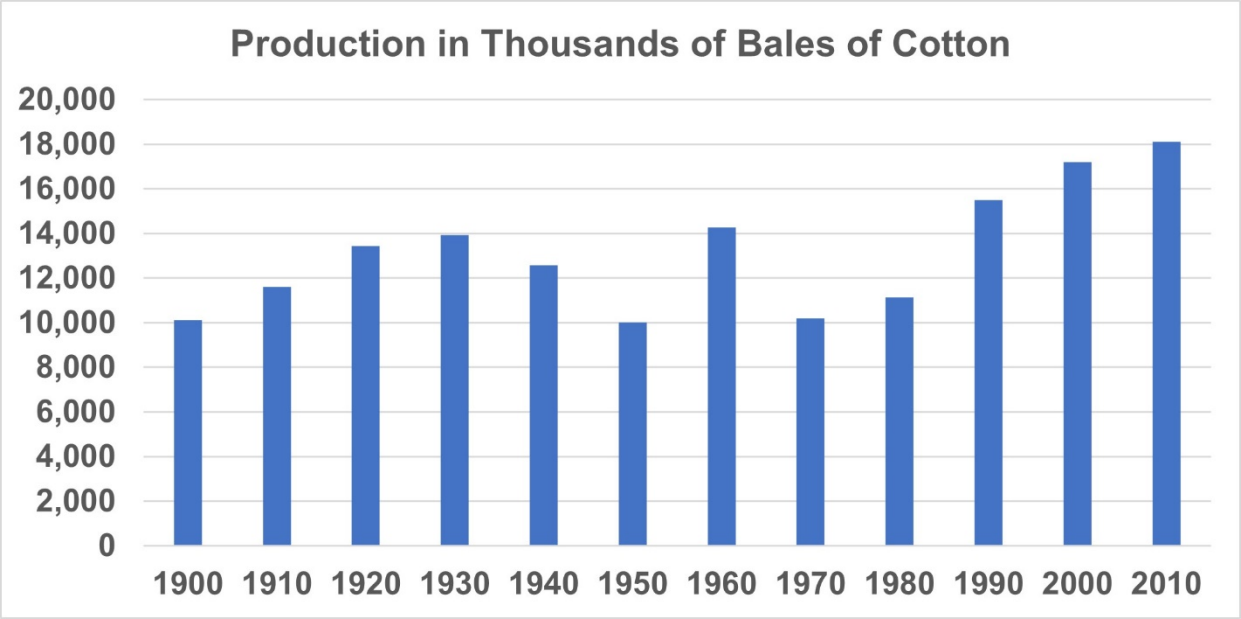

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