



THE NATIONAL
WWII MUSEUM
NEW ORLEANS

“Out-Producing the Enemy”
American Production During WWII

The National WWII Museum
945 Magazine Street
New Orleans, LA 70130
(504) 528-1944

www.nationalww2museum.org/learn/education

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“Out-Producing the Enemy:” American Production During WWII

Before the Japanese bombed Pearl Harbor and the United States entered WWII in December 1941, the American economy was still weak from The Great Depression. In 1939, the US unemployment rate was high at 17.2% and America’s military was small, ranking 18th largest in the world after the nation of Romania.

A year before America’s entry into the war in 1940, Adolf Hitler, the Nazi leader of Germany, predicted that American war supplies would not be enough to help the Allies win the war. Hitler said that “an American intervention by mass deliveries of planes and war materials will not change the outcome of the war.” However, US president Franklin Delano Roosevelt was determined to prove Hitler and the Axis Powers wrong. Roosevelt told the American people that they must all work together to win the war because “powerful enemies must be out-fought and out-produced.”

In this lesson, discover how the United States was able to out-produce all other countries during World War II and create a “production miracle.” Students will analyze and graph historical statistics, and use primary sources like photographs, quotes, and propaganda posters to explain how US production helped the Allies to win the war.

- OBJECTIVES:** Students will be able to:
- Identify and analyze primary and secondary sources including quotes, photographs, and propaganda posters to learn about the American Home Front experience during WWII.
 - Define the term “production miracle” and explain why this term is used to describe American economic production during WWII.
 - Discuss the historical factors that contributed to the US wartime “production miracle.”
 - Use WWII production statistics to calculate and graph the rate of US production from 1941-1945 and compare/contrast this with aircraft production by Great Britain, Germany, and Japan during the same time period.

GRADE LEVEL: 6-8

STANDARDS: **Common Core ELA Standards for Writing & Literacy in History/Social Studies (6-8)**

CCSS.ELA-Literacy.W.7.9: Draw evidence from literary or informational texts to support analysis, reflection, and research.

CCSS.ELA-Literacy.RH.6-8.1: Cite specific textual evidence to support analysis of primary and secondary sources.

CCSS.ELA-Literacy.RH.6-8.7: Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Common Core Mathematics Standards for Content, Ratios & Proportional Relationships (6-8)

CCSS.MATH.CONTENT.7.RP.A.2A: Recognize and represent proportional relationships between quantities.

National Center for History in the Schools

Historical Thinking Standard 2: the student comprehends a variety of historical sources by using visual and mathematical data and literary sources.

Historical Thinking Standard 3: the student engages in historical analysis and interpretation.

TIME REQUIREMENT: 90 minutes; or 2 class periods

MATERIALS:

Out-Producing the Enemy: Student Primary Source Analysis worksheet

Out-Producing the Enemy: How Much Did the US Produce During the War? Math worksheet

KEY TERMS:

- **Allied Powers:** the countries that were fighting against the Axis Powers during WWII. Included the United States, Great Britain, and Soviet Russia after the Germans invaded Russia in June 1941.
- **Assembly line:** an arrangement of workers, machines, and equipment in which the product being made passes from work station to work station until completed. Also called a *production line*.
- **Axis Powers:** the countries that were fighting against the Allied Powers during WWII. Included Nazi Germany, Italy, and Japan.
- **Civilians:** the men, women and children of a country who are not fighting in the military during a war.
- **Great Depression:** a long period of worldwide economic collapse after the US Stock Market Crash in 1929 in which many people were out of work and many banks and businesses failed. This period lasted in the US until the country entered WWII and began producing goods for the war effort.
- **Home Front:** the name given to the homeland or civilian area of a country that is at war and whose military is fighting away from home.
- **Primary source:** an original or first-hand document, story, or object that was created by someone during the time period under study.
- **Production miracle:** the term given to America's enormous rate of economic production during WWII.
- **Rationing:** the government's program to provide enough food and materials to fight the war by equally dividing up limited resources of food, gas, and other materials among all Americans using a coupon and point system.
- **Secondary source:** an account, object, or interpretation of an event which was created by someone without first-hand experience of the time period under study.
- **Total war:** an unrestricted type of war in which both the military and civilians at home are expected to contribute to the war effort and run the risk of being attacked by the enemy.

DIRECTIONS:

Part One:

1. **Brainstorm/problem-solving activity:** As the students enter the room, explain that they will be learning about US participation and production in WWII today. To begin, divide them into pairs and ask them to imagine that they are meeting with US President Franklin Roosevelt and his advisors in the early 1940s to discuss US preparations for war. To prepare for this meeting, student groups will need to answer the question, "What types of things do you need to win a war?" They have **three minutes** to think about, list and discuss all of the things (people, materials) that are needed to win a war and to write these in their notebooks. (3 min.)
2. Reconvene as a class to review and discuss group responses and list answers on the board. Ask students to explain how/why their answer is needed to win a war. Examples can include men to fight in the military, guns to be used in battles, metal to make weapons, women to work in the factories while the men are off fighting, factories to produce weapons and other materials, etc. (7 min.)
3. Explain that before the US entered WWII in 1941, it was not clear that the country would be able to produce enough of the goods necessary to fight the war in the large quantities that were needed. America was still in the Great Depression, with high unemployment and in 1939, the US military was also 18th largest in the world after the country of Romania. The US had approximately 630,000 soldiers compared with Germany and Japan, who had over 4 million soldiers each. Share the Hitler quote and ask, "What does this tell you about what the enemies of the US thought about America's production power and importance in the war? (10 min.)
 - "...An American intervention by mass deliveries of planes and war materials will not change the outcome of the war." ---Adolf Hitler, leader of Nazi Germany, 1940.

Follow up this quote by sharing the Roosevelt quote:

- "Powerful enemies must be out-fought and out-produced--Franklin Delano Roosevelt, President of the United States, 1941-2

Tell students that they are going to figure out **how** the United States was able to out-produce its enemies by exploring historical clues made during WWII or primary sources. Review the terms primary and secondary sources. After this primary source investigation, they will use math to figure out **how much more** the US was able to produce than its enemies or Allies during the war.

- Hand out the primary source sheet. Explain that students will have **25-30 minutes** to study each source closely and explain what important information that it tells them about US production during WWII by completing the primary source analysis chart. (25 min.)

Note: It is up to the teacher to decide if they want students to complete the source analysis activity as a group or individually. Alternatively, sources can be divided up and assigned to different students or groups to shorten the length of time needed for this activity.

- Reconvene the class after the primary source analysis activity and take volunteers to describe each source and explain what the source tells them about life on the American home front. Ask the students at the end of each report out: **“What information does this source tell me about US production during WWII?”** Their classmates can also take notes in their notebooks or on their worksheets as the teacher records responses on the board. (10 min.)

Part Two:

- Next, explain to the class that they will be doing a math activity using production statistics from WWII to learn **what types of things** that the US produced for the war effort and **how much of each item** they made between 1941 and 1945. Introduce the term, “production miracle” and tell the students that this is a name that is often given to America’s enormous amount of production during the war. Ask the students to think about and share definitions of what that term might mean and tell them that the class will revisit this term after they complete the math and line graph activity sheet.
- Handout worksheet, colored pencils, and calculators. Note: The recommended time amount for this activity is **25-30 min**. If there is not enough time in class for students to begin or complete the worksheet, the math activity can also be assigned for home work.
- Conclude the class by asking them to reflect on and share their answers to these two questions: **How did the US perform a production miracle? In your opinion, what were some of the most important factors that contributed to the high rate of US production?** (10-15 min.)

Take Home Art Reflection Activity:

Now that the students have had an opportunity to learn more about American production and life on the Home Front during WWII, they must create a motivational WWII propaganda or recruitment poster based on what they have learned today. Each poster must have a strong message and image that recruits or otherwise encourages Americans to increase wartime production to win the war. They can look for inspiration and learn more about WWII propaganda techniques by visiting the classroom resources area of The National WWII Museum’s [“We Can...We Will...We Must! Allied Propaganda Posters of WWII”](#) website.

ASSESSMENT: Components for assessment include the Out-Producing the Enemy: Student Primary Source Analysis worksheet, the Out-Producing the Enemy: How Much Did the US Produce During the War? Math worksheet, classroom discussion, and take home art reflection activity.

ENRICHMENT: Teachers can deepen student knowledge of US Home Front production by pairing this lesson with the “Who’s Who in WWII Production” fact sheet and industrialist Facebook profile activity and the “Manufacturing Victory Matching Activity: Who Produced What for the War?”, Additional primary sources like oral histories with factory workers and government propaganda films can be found on the “Manufacturing Victory” exhibition website. Local teachers can also bring their students onsite for a field trip to The National WWII Museum to see the “Manufacturing Victory: Arsenal of Democracy” exhibit while it is on display and the Home Front galleries.

- The “*Out-Producing the Enemy*” lesson can also be used in conjunction with the study of the changing roles and expectations of, as well as discrimination faced by women, African Americans and others during WWII, or to enhance a pre-existing WWII unit. To find additional information about these topics, visit The National WWII Museum’s [Focus On](#) and [Fact Sheets](#) pages. Students can also explore and listen to oral histories of women and African Americans [on The Digital Collections of The National WWII Museum’s website, ww2online.org](#).

- What was life like for students on the Home Front during WWII? How did they contribute to the war? Students can explore this topic by investigating the Museum’s [“See You Next Year:” High School Yearbooks From WWII](#) website at [ww2yearbooks.org](#) and [“The Classroom Victory Garden Project” website](#). Have students compare and contrast their current life as a student with students from the WWII era and develop a creative reflection piece (story, poem, drawing, or class mural) that shows how life for people their age has changed over time, and also shows what things have stayed the same.
- Oral History Project: Students can locate and interview family members or other local residents in their community to discover what life was like for civilians on the Home Front when American was at war. Students can begin with members of the WWII generation but can also interview people who lived through the Vietnam War and more recent wars in Iraq and Afghanistan. [Museum guidelines for conducting oral histories](#) and watching interviews on [The Digital Collections of The National WWII Museum](#) are a good place for students to start their research.
- As a longer-term research project, have students research their local area’s contributions to the WWII war effort and create a mini-exhibit. Student research can include collecting images, stories, and other primary sources connected with rationing and scrap drives, Victory Gardens, local factory production, and other aspects of life on the Home Front. Then, students can submit an image and write a brief label for their picture for inclusion in a classroom exhibit about life in their town during WWII. Alternately, the teacher can set up an account on HistoryPin.com, Pinterest or another social media platform to share the town’s WWII story and continue to collect information from community members.

RESOURCES:

The National WWII Museum

- [“The Classroom Victory Garden Project” website](#)
- [The Digital Collections of The National World War II Museum](#)
- [Explore WWII History](#) feature
- [Focus On](#): “African Americans” and “Women at War” features
- [Fact sheets](#)
- [Lesson Plans](#): The Home Front and STEM categories
- Museum Blog features: [“Home Front Friday”](#) and [“Worker Wednesday”](#)
- [Research Starters for Students](#): Higgins Boats, Home Front, Rationing, Women in WWII
- [“Science and Technology During WWII” website](#)
- [“See You Next Year!: High School Yearbooks from WWII” website](#)
- [“We Can...We Will...We Must! Allied Propaganda Posters of WWII” special exhibit website](#)

National Archives and Records Administration

- [www.archives.gov](#)
- DocsTeach.org, [Documents from The Great Depression and World War II Eras](#)
- [World War II Photograph Collections](#)

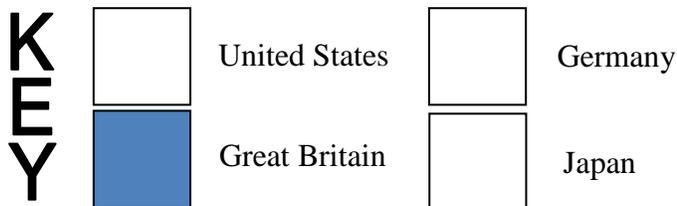
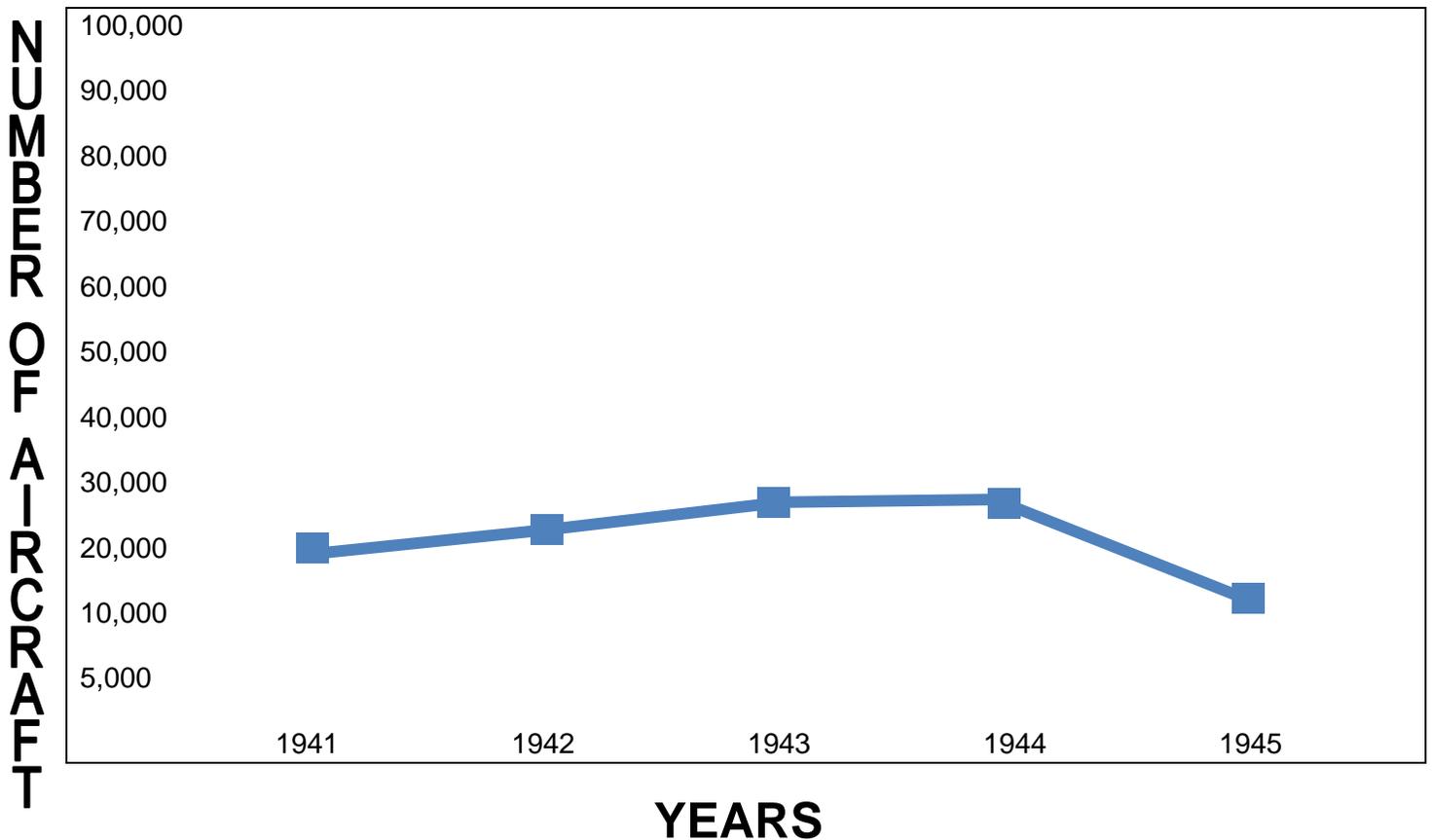
**Out-Producing the Enemy:
How Much Did the US Produce During the War?
Student Worksheet**

Part One: WWII Aircraft Production by Country

Directions: The US produced an incredible amount of weapons during the war. How much was it producing compared to other countries like its ally Great Britain, and its enemies, Germany and Japan? To find out, use the aircraft production table below, and plot the production levels of each country to complete the line graph. Great Britain has already been graphed for you. When you are finished graphing, answer the following questions about the graph.

A. Amount of WWII Aircraft Production By Country, 1941-1945 (all types)

	1941	1942	1943	1944	1945
United States	19,433	47,836	85,898	96,318	46,001
Great Britain	20,094	23,672	26,263	26,461	12,070
Germany	12,401	15,409	24,807	40,593	7,540
Japan	5,088	8,861	16,693	28,180	8,263



**Out-Producing the Enemy:
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B: Use your completed line graph to answer the following questions:

1. What year did US aircraft production surpass:
 - Great Britain?
 - Germany?
 - Japan?

2. Using your prior knowledge of WWII history, give 2-3 reasons why you think US aircraft production rapidly increased while the other three countries started to slow down during the war.

Part Two: Total US Military Production in WWII (1941-1945)

Directions: From its entry into the war in 1941 until 1945 when WWII ended, the United States was able to out produce both its allies and its Axis enemies. How much did the US actually produce during the war? Below is a table of the total amount of war supplies that the United States produced during the 45 months that it was at war during WWII (1941-1945). Calculate approximately how much of each item was produced by the US each month during this 45 month time period to complete the table below.

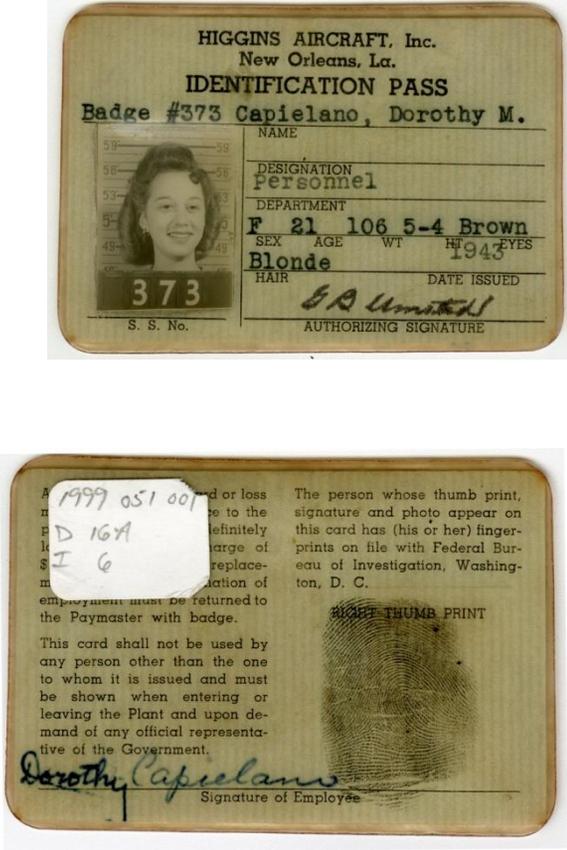
Total US Wartime Military Production Table:

Military Item:	Total Number Produced During War:	Approximate Number Made Per Month (Total Number Produced ÷ 45 months at war)
Aircraft carrier ships	107	2 per month
Tanks	352	
Airplanes	300,000	
Machine Guns	2.6 million	
Bullets	41 billion	

**“Out-Producing the Enemy:” American
Production During WWII**
Student Source Analysis Worksheet

Directions: Below are historical sources that provide you with clues about why the US was able to produce massive amounts of war supplies during WWII. Study each source carefully. Using your prior knowledge of US history and powers of observation, explain why your source is important and what it tells you about American production on the Home Front during WWII.

Primary Source:	Describe the source:	Who was this source made for or used by? How can you tell?	What information does this source tell me about US production during WWII?
<p>Source A:</p>  <p>Caption: “United We Win” poster. War Manpower Commission, Washington, D.C., 1943. The Collection of The National WWII Museum, 2013.077.113.</p>			

Primary Source:	Describe the source:	Who was this source made for or used by? How can you tell?	What information does this source tell me about US production during WWII?
<p>Source B:</p>  <p>The first document is a Higgins Aircraft identification pass for Dorothy M. Capielano, issued in 1943. It includes a photograph, a height chart, and personal details such as sex (Female), age (21), weight (106), eye color (Brown), and hair color (Blonde). The pass is signed by G.A. Unlimited.</p> <p>The second document is an FBI identification card for Dorothy Capielano, featuring a thumbprint and a signature. It includes a notice about the card's use and a reference number 1999 051 001.</p> <p>Caption: Dorothy Capielano, Higgins Aircraft Plant Identification Badge, 1943. Gift of Gerald Lanoix, from the Collection of The National WWII Museum, 1999.051.</p>			

Primary Source:	Describe the source:	Who was this source made for or used by? How can you tell?	What information does this source tell me about US production during WWII?
<p>Source C:</p> <p>“[Working at the shipyard in Mobile, Alabama] was seven days a week. And during the war when [production] was so strong, it was twelve-hour days, five days a week, ten hours on Saturday, [and with only] eight hours on Sunday, you felt like you had a week off.”</p> <p>--Clyde Odom, foreman at Alabama Dry Dock Ship and Building Company. Quote from <i>The War</i> website, www.pbs.org/thewar, September 2007.</p>			
<p>Source D:</p>  <p><u>Caption:</u> Chrysler Corporation's Detroit Arsenal Tank Plant, 1940s. Courtesy of the National Automotive History Collection, Detroit Public Library.</p>			

Primary Source:	Describe the source:	Who was this source made for or used by? How can you tell?	What information does this source tell me about US production during WWII?
<p>Source E:</p>  <p>Caption: "Rationing Means a Fair Share for All of Us," poster. US Office of Price Administration, Washington, D.C., 1943. Courtesy of the National Archives and Records Administration.</p>			

Primary Source:	Describe the source:	Who was this source made for or used by? How can you tell?	What information does this source tell me about US production during WWII?
<p>Source F:</p>  <p>SCRAP PAPER CLUB</p> <p>This energetic group of boys and girls, formed and guided by Miss Mable Hawthorn, has done a splendid job in the collection of the much-needed salvaged paper. The members of this club are elected as representatives from each home room. They collected the scrap paper from their home rooms, private homes, and typing rooms. They have even gone out in trucks and cars on Saturdays to collect paper. These hard-working students deserve much cooperation and credit which they have received, for the time and effort which they have so willingly given to collecting waste paper.</p> <p>PAPER SCRAP CLUB</p> <p>1st row: Sam Hay, Ed Rusk, Sally Masingill, Paul Lacombe.</p> <p>2nd row: Charles Coleman, Sadie Cumbie, Esther McGraw, Doris Scallion, Charlotte Vonkomic, Rosemary Burridge, Mattie Price, Joyce Greene, Geraldine Smith, Lois Jeannotte.</p> <p>3rd row: Jack Lee, L. L. Price, Ralph Buckley, Faye Parker, Ruth Grinnell, Archa Cook, Lorraine Tuxedo, Billie Alice Craig, Jean Marie Stone, Sunny Eames.</p> <p>4th row: Charles Brister, Douglas Martinez, Robert Therman, Jack Harrison, Norman Nover, Robert Orsagh, Frank Daniels, Miss Hawthorne.</p> <p>GREASE CLUB</p> <p>1st row: Fred Cotten, Zironelle Jarred, Oney White.</p> <p>2nd row: Arthur Dearborne, Steve Parker, Billy Mangham, Irene Harris, Joyce Heron, Andrew Choubot, Raymond Massey, Roy Anderson, Marilyn Stewart, Lena Pugh, Kitty Bartelton, Patricia Jossame, Lee Roy Till.</p> <p>3rd row: Roger Dawkins, Sam Polizzi, Ruth Delcayme, Jackie Rowdole, Elaine Holloway, Frances Turner, Joyce Evans, Rosella Myers, Helen Hastings, Miss Lovell.</p> <p>4th row: Jerry Adams, Leon Calvit, Fin Hynson, Etanlee Grinnell, Thomas Davis, Marla Fay Rubin, Mary Flo White, Dick Caldwell, Merrill Lewis, Betty Lowther, Robbie Higdon.</p> <p>GREASE CLUB</p> <p>The boys and girls of the Grease Club do everything it takes to collect the waste fats that are so vitally needed in our factories. These waste fats help turn out the ammunition that our boys need on all the battlefronts of the world. The members of this club are elected in each home room. They conduct house-to-house campaigns. The homerooms that go one-hundred per cent have their names placed on a plaque under the bomb presented to Bolton by the Alexandria Air Field. This salvage group, under the direction of Miss Lievens, should be given credit for helping Bolton do her part in this war.</p> <p>Caption: Page from Bolton High School's <i>The Bruin</i> yearbook showing the Scrap Paper and Grease student clubs. Alexandria, LA: 1944. From the Collection of The National WWII Museum. See the entire yearbook online at ww2yearbooks.org.</p>			

THINK: Based on what you have learned, why do you think that people call the rate of U.S. WWII production a “production miracle?”