

Curse You, Red Baron!: New Technology in World War I

Lesson plans for primary sources at the Tennessee State Library & Archives

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Grade Level: 9th grade World History/Geography or other World History class
11th Grade US History/Geography or other US History class
Middle school teachers should preview materials before use.

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Introduction: As part of a study on World War I, students will understand how new industrial inventions and technology were adapted to try to break the stalemate of trench warfare on the Western Front, relate those developments to modern examples of disruptive technology, and consider how new technology can be used positively and negatively.

Note: *This lesson plan should be considered part of an overall unit on World War I/Progressive Era/Global War. It focuses on one aspect of the war and shouldn't take more than a couple of classes depending on length and teacher preference.*

Guiding Questions:

- How can technology disrupt history?
- How can technology be negative?
- How was new industrial military technology adapted to military use during World War I?

Learning Objectives: In the course of the lesson, students will

- Students will be able to explain how new industrial technology adapted to military use during World War I.

Curriculum Standards:

W.28- Explain the nature of the war and its human costs on all sides of the conflict, including unprecedented loss of life from prolonged trench warfare.

W.29- Trace advances in weaponry, the belief that the “Great War” would end war, and disarmament movements.

US.28- Identify and explain the impact of the following events and people during World War I:
...--Use of new weapons and technology

[CCSS.ELA-Literacy.RH.9-10.1](#) - Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.

[CCSS.ELA-Literacy.RH.9-10.2](#) - Determine the central ideas or information of a primary or secondary source; provide an accurate summary of how key events or ideas develop over the course of the text.

Materials Needed:

1. Student internet access OR a lot of printer ink
2. Projector or screen for whole class streaming
3. Bookmarked web sites:
 - <http://www.pbs.org/how-we-got-to-now/videos/>
 - [Tennessee in World War I Collection](#)
 - [Gas Attack](#)
 - [The Volunteer State Goes To War: A Salute to Tennessee Veterans](#)
 - <http://www.warpoeetry.co.uk/owen1.html>
 - <http://www.pbs.org/wgbh/nova/military/first-air-war.html>
 - [Puryear Family Photograph Albums](#)
 - <http://www.deseretnews.com/article/192281/FORGET-RED-BARON-SMITHSONIAN-DEBUNKS-AVIATIONS-WWI-ROLE.html?pg=all>

All sites are bookmarked at <http://guest.portaportal.com/jbcov>.

Background:

"World War I"

Author: Margaret Ripley Wolfe **Source Location:** [Tennessee Encyclopedia of History & Culture](#)

Lesson Activity 1: Introduction

Many consider the 21st century the dawn of a new technological era—the Information Age. One could argue that the smart phone is the main avatar of this new era. How has the smart phone both been a positive and a negative invention? How has it affected your lives positively AND negatively? Give two examples each of positive and negative effects.

Use the discussion of student responses to introduce the idea of disruptive technology—technology that changes lives and markets (pc's, cars, email, toilets). Watch the clip from the "[How We Got to Now](#)" episode "[Clean](#)" on how toilets changed sanitation and the development of chlorination. Give the students a focus for the clip—"How were toilets and chlorination disruptive?"



Lesson Activities Continued

Note 1: This is NOT a comprehensive look at WWI. Students should already have been exposed to the causes and different alliances in the war. An understanding of the static nature of the Western Front after 1914-1915 would also save time, but can be addressed in the lesson briefly. For a brief summary of events leading to the war, see the text on the TSLA collection [“Tennessee in World War I”](#).

Note 2: This lesson plan can also be used as an introduction to using primary sources in class. All primary sources can be used as part of lecture, student activities, or in depth primary sources analysis. Links to [tools and analysis worksheets](#) for educators and students can be found on the TSLA website.

Note 3: Each primary source and film clip in the lesson plan has a focus question for the source or film. This question should point students towards the points of emphasis for the source.

1. Share the lesson objectives with the class. Remind them how smartphones and toilets changed human lives both positively and negatively. Also review what students have already learned about WWI and new technology of the Industrial Revolution.
2. Next, share an example of disruptive technology—chlorine.
 - Remind students that chlorine used to sanitize water saved millions of lives.
 - Remind students that many of them (at least the ones who do their own laundry) interact with chlorine bleach at home and in pools. You might also help them remember what breathing too much bleach feels like or how their eyes feel after too much pool time.
 - Have the students look at this [aerial photograph of a gas attack](#) and analyze what they see. **Focus for the source:** How was the gas delivered to the enemy (See note 2 above for a [photo analysis worksheet](#) if desired)? Questions for students might include whether or not depending on the wind to deliver your weapon of mass destruction is a great idea...
 - Have students go the online exhibit, [“The Volunteer State Goes to War: A Salute to Tennessee Veterans—World War I”](#), at the TSLA website. Scroll about $\frac{3}{4}$ of the way down the page until you reach the section “Poison Gas.” Have the students click on pages one and two of the “Gas Memorandum.” **Focus for the source:** How was gas delivered, and what were some of the effects of gas (“Lethal” describes the effects of chlorine gas, “cloud” is the usual chlorine delivery method, and “phosgene” describes the symptoms).
 - Now, have students read the poem “Dulce et Decorum Est” by Wilfred Owens, on the same web page right under the memo. If you need some annotations to understand some of the references (or just want students to figure it out for themselves) see the website [“The War Poetry Website”](#). **Focus for the source:** What does the poem describe? What evidence in the poem leads you to this conclusion? What vivid language does the poet use to describe what it’s like to be in a gas attack?
 - Debrief the students to draw conclusions about how chlorine gas was turned from an innovation that saved tens of millions of lives to a deadly weapon of war.

Lesson Activities Continued

3. Now allow students to explore the rest of the online exhibit [“The Volunteer State Goes to War—World War I”](#) AND/OR the [“Tennessee in World War I”](#) collection in the Tennessee Virtual Archive (TeVA) at the TSLA website. Remind students of some of the innovations of the late Industrial Revolution—transportation inventions in particular. **Focus for source:** Create a t-chart that lists all of the “new” weapons of war you see on the website (photographs only) in one column & weapons initially created for “civilian use” (automobiles, tanks) in the other.

4. To wrap up, explore another innovation of the late Industrial Revolution that was quickly turned into a weapon of war—the airplane.



- Show students the first part of the NOVA documentary [“First Air War”](#). **Focus for source:** For what were airplanes used as the war progressed?
- (You can choose to use as much or as little of the doc as you like—I would suggest stopping at the following exchange after the testing of the fixed photograph at 20:00.
 - ◇ *NARRATOR*: The team looks at the results of both missions. It's clear that the fixed camera produced the better shots. The BE.2's camera mount means that the photographs can be easily put together to form an aerial view of the entire area.
 - ◇ *GENE DE MARCO*: There's a significant advantage to the modifications made to the airplane, the development of the airplane.
 - ◇ *BEVAN*: Absolutely! Yeah.
- Pick the doc back up at 31:04 with the following line:
 - ◇ *NARRATOR*: What Fokker is about to deliver will tip the balance of power in the air in Germany's favor. Fokker's interrupter mechanism synchronizes the gun's firing rate with the engine so that the bullets fly through the gaps between the spinning propeller blades. But when the propeller passes in front of the muzzle, a mechanism blocks the trigger of the machine gun and stops it from firing.
- Continue with same **focus for source** until 33:00 and the following line:
 - ◇ ...known as the “Fokker scourge.”
- Scroll to nearly the end of the film and pick it back up at 48:00 with the following line:
 - ◇ *NARRATOR*: Now, finally, with the Sopwith Camel....
- This last part is not strictly necessary, but has a lot of cool planes flying around and brings the air war back to industrial mass production.
- If you would like to develop more material on the air war, you can have students explore the [Puryear Family Photograph Albums](#) collection in the Tennessee Virtual Archive (TeVA). George Puryear was an aviator from Tennessee who was shot down over enemy territory. The collection is a bit difficult to work with due to its scrapbook nature, but might also be a good intro to students using the archive collections, searching the sources, and analyzing. It is actually an entire digitized family photo album you can explore from page to page and includes dozens of photographs of aviation during World War I.

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Lesson Activities Continued

Suggestions for assessment:

- ACES paragraph answering the question “How were inventions and production of the Industrial Revolution used in World War I?”
- Review the objective and make sure it is testing in the overall unit.
- Continue to draw parallels between technological innovation and military hardware—nuclear weapons, GPS smart bombs, the murder factories of the Holocaust, assault rifles, jets, rockets, space race, etc.
- Have students research and report on technological innovations of World War I.



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ON THE S. S. OHIOAN
Sergeant York as he returned from France after accomplishing what was said to be the greatest individual feat of the war.