

2.7 EVERYDAY INVENTIONS AND GERMAN INGENUITY

How are our lives impacted by inventions?

C3 Framework Indicator	D3.1.6-8. Gather relevant information from multiple sources while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection.	
Staging the Compelling Question	In this inquiry, students will research German inventions of everyday items, such as the hole punch, toothpaste, and the coffee filter, and create a poster to share what they have learned.	
Supporting Question 1	Supporting Question 2	Supporting Question 3
What are the characteristics of an inventor?	What everyday items have been invented by Germans?	How are our lives influenced by inventions?
Formative Performance Task	Formative Performance Task	Formative Performance Task
After reading the online article “What Inventors Are,” student groups will determine which of the characteristics in their list they think is the most important and why, and create a class word cloud of the characteristics.	Students will research an assigned inventor and invention, and create a poster using the provided guidelines.	Students will complete a gallery walk of the poster generated in Formative Performance Task 2 to determine which invention is the most innovative, the most useful, the most creative, and has had the greatest impact, as well as which invention the student would miss the most if it was no longer available.
Featured Sources	Featured Sources	Featured Sources
Source A: Invention Source B: Word Cloud Generator	Source A: Handout 2.71 Source B: Handout 2.72	Source A: Handout 2.73
Summative Performance Task	<p>Argument: Construct an argument (e.g., detailed outline, poster, essay) that addresses the compelling question, using specific claims and relevant evidence from historical or contemporary sources while acknowledging competing views.</p> <p>Extension: Many women and minority inventors hid their identity when applying for a patent. Read the article and research the women and minority inventors cited to create a display to share with your classmates and school.</p>	
Taking Informed Action	<p>Understand: Inventions are developed by individuals of all ages.</p> <p>Assess: Working with the support of a teacher, determine your classmates interest in forming an Invention Club!</p> <p>Act: With the support of a teacher, create an afterschool Invention Club or program.</p>	

? COMPELLING QUESTION

- How are our lives impacted by inventions?

INQUIRY OVERVIEW

In this inquiry, students will research German inventions of everyday items, such as the hole punch, toothpaste, and the coffee filter, and create a poster to share what they have learned. Through a gallery walk, students will determine which of the researched inventions they felt were the most innovative, most useful, most creative, had the greatest impact, and would be missed the most if no longer available.

TEACHER BACKGROUND

Germany has a reputation for innovation, with countless groundbreaking inventions. When we think of Germany—the land of poets and thinkers—we often think of Johann Wolfgang von Goethe, the poet and natural scientist; Özlem Türeci, who developed the first messenger RNA-based vaccine against Covid-19; Albert Einstein, who discovered the theory of relativity; Maria Goeppert-Mayer, who proposed the nuclear shell model of the atomic nucleus.

And while many German brands have become household names (think Volkswagen and Mercedes-Benz), few people realize how many commonly used items came to be, thanks to German inventors.

Take the automobile, for example. In 1885, Gottlieb Daimler and Wilhelm Maybach built the first functional combustion engine and attached it to a bicycle. This “riding car” was presented a few years later at the Paris World Fair in 1889, and by the 1920s, people were mobile.

Or the coffee filter. In 1908, Dresden homemaker Melitta Bentz wondered if an improvised paper filter could make her morning coffee less bitter. Voila! The coffee filter was born, and Bentz became an inventor. After she patented her idea, Melitta Group KG became a booming business and today employs thousands of people.

Another unexpected example is the accordion, an instrument many associated with French chanson. It was, in fact, invented in Berlin in 1822 by Friedrich Ludwig Buschmann. Even more remarkable is that this craftsman is said to have first invented the harmonica.


From pioneering flight by inventing the hang glider and the helicopter to medical advancements like the X-ray machine, Germans have had a hand in many inventions we still use today.¹

Teachers may wish to share the History of Inventions timeline: <http://web.archive.org/web/20080709054044/http://www.cbc.ca/kids/general/the-lab/history-of-invention/default.html>.

A comprehensive listing of inventions and discoveries can be found at <https://www.factmonster.com/math-science/inventions-discoveries/inventions-and-discoveries>.



¹ 10 Everyday Things Invented in Germany. (2019, April 29). *Deutsche Welle*. DW.COM, www.dw.com/en/10-everyday-things-invented-in-germany/a-18912226.

 **TIME:** Three to four 45-minute class periods

INSTRUCTIONAL RESOURCES



www.goethe.de/
top/letsexplore

- German Inventors List (**Handout 2.7.1**)
- German Inventors Poster Project (**Handout 2.7.2**)
- German Inventors Invention Gallery Walk (**Handout 2.7.3**)
- 10 Genius Ways German Inventors Improved Our Lives. (2016, January 16). TheLocal.de, www.thelocal.de/20160116/ten-of-germanys-greatest-inventions-every-day-german-inventors.
- 15+ Things You Didn't Know Were Invented in Germany. (2018, May 23). TakeLessons Blog, takelessons.com/blog/german-inventions-z12.
- Automotive Hall of Fame. (n.d.). Bertha Benz. Retrieved October 29, 2021, from <https://www.automotivehalloffame.org/honoree/bertha-benz/>.
- Burke, James. Invention. (2020, November 10). *Encyclopedia Britannica*. www.britannica.com/technology/invention-technology.
- Davies, Jason. Word Cloud Generator. Retrieved October 29, 2021, from www.jasondavies.com/wordcloud/.
- 10 Everyday Things Invented in Germany. (2019, April 29). *Deutsche Welle*. DW.COM, www.dw.com/en/10-everyday-things-invented-in-germany/a-18912226.
- Deutsche Zentrale für Tourismus. (2020, December 3). German Inventions & Brands. *Germany Simply Inspiring*. www.germany.travel/en/ms/german-heritage/made-in-germany/brands-and-inventions.html.
- German Patent and Trade Mark Office. (2021). Kaethe Paulus. https://www.dpma.de/english/our_office/publications/ingeniouswomen/kaethepaulus/index.html.
- Kaplan, J. (2020, December 22). Meet the Married Billionaire Couple Who Helped Create the BioNTech/Pfizer Vaccine. *Business Insider*. <https://www.businessinsider.com/meet-married-biontech-billionaires-who-helped-create-pfizer-vaccine-2020-11>.
- Marcus, Imanuel. (2020, September 6). Made in Germany: The Top 10 German Inventions. *The Berlin Spectator*. berlinspectator.com/2020/07/14/made-in-germany-the-top-10-german-inventions-1/.
- Marga Faulstich. (n.d.). Wikipedia. Retrieved October 29, 2021, from https://en.wikipedia.org/wiki/Marga_Faulstich.
- Maroshek, Lora. (2020, September 30). 20 Famous Things You Didn't Know Were Invented in Germany—You May Be Surprised! *Life in Düsseldorf*. lifeinduesseldorf.com/invented-in-germany/.
- Ritter Sport. (2021). Family Business & Values. <https://www.ritter-sport.com/history>.
- The Henry Ford. (n.d.). Invention Convention Worldwide. Retrieved October 29, 2021, from www.nationalinventioncurriculum.org/.
- The History of Invention. Wayback Machine. Retrieved October 29, 2021, from web.archive.org/web/20080709054044/http://www.cbc.ca/kids/general/the-lab/history-of-invention/default.html.
- The TOP 40 German Inventions. *Step into German – German(y)—The TOP 40 German Inventions*. Goethe-Institut. Retrieved October 29, 2021, from www.goethe.de/ins/us/saf/prj/stg/ger/inv/enindex.htm.
- What Is a Patent? (2019, July 2). *Findlaw*. www.findlaw.com/smallbusiness/intellectual-property/what-is-a-patent.html.

INTRODUCTORY QUESTION

As a class, brainstorm: what is an invention?

Then share the following definition:

Invention: a new, useful process, machine, improvement, etc., that did not exist previously and that is recognized as the product of some unique intuition or genius, as distinguished from ordinary mechanical skill or artisanship. (<https://www.dictionary.com/browse/invention>).

Then examine the brainstorm list of what is an invention in relation to this definition.

? SUPPORTING QUESTION 1

What are the characteristics of an inventor?

► Formative Performance Task

Divide the class into groups of four. Ask each group to read the “What Inventors Are” segment of the online article by Burke at the Invention link in the Resources below, and list the reasons why inventors invent. Each group should determine which of the characteristics in their list they feel is the most important and why.

Use an online program, such as Word Cloud Generator listed in the Resources below, to create a class word cloud of the characteristics determined by each group. Once completed, ask the class to reflect on which characteristics they think are the most important for an inventor and why.

Save the word cloud. If possible, post the word cloud or print it for use in **Formative Performance Task 2**.

► Resources

- Burke, James. Invention. (2020, November 10). *Encyclopedia Britannica*. www.britannica.com/technology/invention-technology.
- Davies, Jason. Word Cloud Generator. Retrieved October 29, 2021, from www.jasondavies.com/wordcloud/.

? SUPPORTING QUESTION 2

What everyday items have been invented by Germans?

► Formative Performance Task

Assign each student or student pair an inventor and invention from **Handout 2.7.1**. Using the links listed on **Handout 2.7.2**, have the students research the assigned inventor and invention, and create a poster using the provided guidelines. Students should be prepared to introduce their inventor and invention to the class and to answer questions.

► Resources

- German Inventors List (**Handout 2.7.1**)
- German Inventors Poster Project (**Handout 2.7.2**)

? SUPPORTING QUESTION 3

How are our lives influenced by inventions?

► Formative Performance Task

Hang the posters generated in **Formative Performance Task 2** to create an Invention Gallery. Using **Handout 2.7.3**, students will do a gallery walk to determine which invention is the most innovative, the most useful, the most creative, and has had the greatest impact, as well as which invention the student would miss the most if it was no longer available.

As a class, share the results of the gallery walk. Which invention won each category? Were any inventions chosen as the winner for more than one category? Why might that be? Were there any surprises? Did an invention win that no one expected?

Examine the inventions, and as a class, discuss how their lives would be affected if any of the inventions did not exist.

► Resource

- German Inventors Invention Gallery Walk (**Handout 2.7.3**)

✔ SUMMATIVE PERFORMANCE TASK

What impact do the inventive efforts of others have on our lives?

Construct an argument (e.g., detailed outline, poster, essay) that addresses the compelling question, using specific claims and relevant evidence from contemporary sources while acknowledging competing views.

⊕ EXTENSION (OPTIONAL) TASK

Many women and minority inventors hid their identity when applying for a patent. Read the article *Inventive Thinking and Creativity* about women and minority inventors (start reading at “Inventions,” about halfway through the article). Research the women and minority inventors cited in this article and create a display to share with your classmates and school. If possible, display your work at the local library.

➤ Resource

- Bellis, Mary. *Inventive Thinking and Creativity*. (2020, August 27). ThoughtCo, [thoughtco.com/inventive-thinking-and-creativity-1991217](https://www.thoughtco.com/inventive-thinking-and-creativity-1991217).

Information on patents can be found at:

- What Is a Patent? (2019, July 2). *Findlaw*. www.findlaw.com/smallbusiness/intellectual-property/what-is-a-patent.html.

★ TAKING INFORMED ACTION

Understand: Inventions are developed by individuals of all ages.

Assess: Working with the support of a teacher, determine your classmates’ interest in forming an Invention Club!

Act: With the support of a teacher, create an afterschool Invention Club or program. Use the “Information on How to Form an Invention Program” at <https://www.nationalinventioncurriculum.org>.

➤ Resource

- The Henry Ford. (n.d.). *Invention Convention Worldwide*. Retrieved October 29, 2021, from www.nationalinventioncurriculum.org/.

CONCEPTS LIST

- Inventor
- Invention
- Curiosity
- Patent