

Victor or Villain? Wernher von Braun and the Space Race

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Set during the Cold War and space race, this historical role-play focuses on Wernher von Braun's involvement in and culpability for the use of slave laborers to produce V-2 rockets for Nazi Germany. Students will grapple with two central questions. Should von Braun have been allowed to emigrate to the United States given his affiliation with the Nazis and use of slave laborers? Should the U.S. government and military have put Braun in powerful positions in NASA and military programs? This activity encourages students to hone their critical thinking skills as they consider and debate a complex, multi-layered historical scenario. Students also have opportunity to articulate persuasive arguments either for or against von Braun. Each character sketch includes basic information, but additional references are included for teachers and students who want a more in depth background.

Keywords: role-play, Wernher von Braun, Space Race, active learning

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In 2009, the United States celebrated the fortieth anniversary of the *Apollo 11* crew's landing on the moon. Although most students are probably familiar with Neil Armstrong's quotation, "One small step for man, one giant leap for mankind," many may not know about the controversy surrounding the architect of the American space program, Wernher von Braun (pronounced "VER-ner von brown"). von Braun was the German-born inventor of the V-2 rocket, which was produced using slave labor and launched indiscriminately at British civilians during the latter stages of World War II. The V-2 claimed more than 7,000 lives in Britain, and approximately 20,000 laborers died producing the weapon.

The following activity forces students to confront an important and controversial question: Should someone who was involved with slave labor have been allowed to emigrate to the United States and subsequently play such an influential role at the National Aeronautics and Space Administration (NASA)? This question is at the heart of the activity and provides a rich milieu to improve the critical thinking skills of high school students as well as to provide an opportunity to articulate arguments in his defense or in support of his ouster.

Role-Playing as an Instructional Strategy

By engaging in historical role-plays, students can explore different viewpoints regarding controversial topics (Clegg 1991, 23). Rather than obliging students to act as passive recipients of knowledge, role-playing, offers a degree of affective engagement that can "breathe life into a character from history" (Cruz and Murthy 2006, 4). Walter Parker (2009, 117) states, "There may be no activity more powerful for developing historical empathy than to role-play characters involved in a real historical happening." However, for role-plays to be effective, teachers must give careful thought to how they are implemented in the classroom.

A successful role-play depends on four elements: background knowledge, perspective, situation, and management (McDaniel 2000, 357–362). By providing background information, a teacher helps students contextualize the decision-making process of the participants. Student success depends in part on context, and in part on how well the role-play stimulates creative, analytical, and divergent thinking. This role-play provides different and even antagonistic perspectives to ensure that students will experience and express divergent opinions. von Braun defends his choices, citing his desire to foster space travel. In contrast, Willie Ley left Germany rather than work under the Nazi regime. Some students will represent slave laborers employed in building V-2s in Germany, while one will speak to the United States's Cold War concerns related to weapons development, the space race, and therefore, the need to attract scientists such as von Braun. Because of the potential for disagreement among students in this

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activity, the teacher should carefully manage the learning environment and pose questions to encourage discourse and debate, while at the same time stopping unproductive tangents (e.g., name-calling, insults) before they disrupt the activity. This activity is appropriate when teaching American or world history, especially within the context of the Cold War or when discussing social costs and gains of technological advancements.

Background Information on Wernher von Braun

Although Neil Armstrong is remembered as the first human to set foot on the moon, many believe the moon landing would not have been possible without the work of German scientist Wernher von Braun (1912–1977). Braun earned a doctorate in physics from the University of Berlin in 1934, and before he graduated, he began working with the German army (before the Nazis were in power) to develop A-1 rockets. In 1937, possibly to protect his status as technical director of the Peenemünde rocket program (Neufeld 2002, 60), he joined the National Socialist (Nazi) party. By this time, he had begun work on the A-4 rocket program, which was later renamed the V-2 rocket (in German, *Vergeltungswaffe* translates to “vengeance” weapon). Beginning in 1944, more than 3,000 V-2 rockets were launched at Allied targets in Europe, resulting in the deaths of an estimated 7,200 military and civilian personnel.

More people died building this weapon than as a result of its wartime use. The Nazi regime used slave laborers at Peenemünde where the V-2 was developed and expanded the use of forced laborers when they moved production to the Mittelbau-Dora facility located in central Germany, near Nordhausen (Neufeld 1995). Nazi prisoners of war, including Russians, Poles, Frenchmen, and common criminals, were used as slave laborers at Dora to construct the underground tunnels and to operate the machinery necessary to produce the V-2 missiles. The Germans generally used Eastern European and Russian forced laborers for construction and Belgian, French, and Germans for rocket construction. Historians estimate that over a two-year period, approximately one-third of the 60,000 workers in the Mittelbau-Dora system died from illness, beatings, hangings, or intolerable working conditions (Waring and Johnson n.d.). Defenders of von Braun see him as a mid-level official who had little freedom of action and who simply carried out orders. Others think von Braun cooperated with and worked for the Nazi state to pursue his technological dreams of space exploration. Ultimately, students will discuss von Braun’s involvement in the use and abuse of enslaved laborers at Mittelwerk, the factory producing the V-2 missiles.

Background Information for Students on Mittelbau-Dora

Mittelbau-Dora, the camp, and Mittelwerk, the factory, were located in central Germany in the Harz Mountains

near Nordhausen. The Germans moved their work underground to Mittelwerk, which was originally a mining facility, after Peenemünde suffered a British attack. By using an underground facility, the Germans hoped that the camp would be impervious to Allied air strikes, which were becoming more common by the latter stages of World War II. The SS brought the first group of enslaved laborers from Buchenwald concentration camp to Dora and Mittelwerk in August 1943. At Mittelwerk, enslaved laborers slept on straw mattresses in damp tunnels for many months before barracks were completed. Enslaved laborers worked brutally long hours without adequate food or water.

With so little water, slave laborers were not able to bathe, and their latrines consisted of oil drums cut in half. At the end of 1943, more than 10,000 prisoners lived in deplorable conditions underground, infested with lice and fleas. Death rates at Mittelbau-Dora were very high, and prisoners died of dysentery, typhus, and starvation. In November and December 1943 alone, 842 laborers died from disease, malnutrition, and physical exhaustion (Introduction: Mittelbau-Dora 1997, xv). Although conditions improved somewhat after outdoor barracks were completed, they deteriorated again at the end of the war. The dead were cremated in Buchenwald’s ovens until a crematorium was built at Dora. In the final months of Dora, its crematorium was so busy that some dead were burned on open pyres.

After teachers have shared this information with students, the class can be broken into six groups, each to assume a historical “identity.” After reading the information provided, one student from each group can present the group’s response to the class as directed in the role-play.

Suggested support materials

“Introduction: Mittelbau-Dora—Secret Weapons and Slave Labor.” In *Planet Dora: A memoir of the Holocaust and the birth of the space age*, eds. Michael Neufeld and Yves Peon (New York: Perseus Books, 1997), XI–XXVII.

Michael J. Neufeld. “Mittelbau conditions.” In *Holocaust encyclopedia*. Washington, DC: United States Holocaust Museum. <http://www.ushmm.org/wlc/article.php?lang=en&ModuleId=10007319>.

Stephen Waring and Molly Johnson. “Slave Labor.” *Dora and the V-2: Slave labor in the space age*. University of Alabama in Huntsville. <http://dora.uah.edu/slavelabor.html>.

Identity Number 1: Wernher von Braun

You are Wernher von Braun. Since you were a little boy, you have dreamed of creating a rocket that can travel into space. In 1932, you start working for the German army to develop ballistic missiles. As a twenty-two-year-old, you receive your doctorate in physics in 1934. Meanwhile, the Nazis have come to power in Germany, and because you

want to continue working as an engineer, you agree to work for them. By 1937, you are the technical director of a top-secret ballistic rocket program at Peenemünde. By age thirty, you are assigned the rank of SS lieutenant, and you manage the engineering program that develops and builds V-2 missiles.

Although it was not your idea to use slave laborers, they are used to produce the V-2 rocket. You have visited the concentration camp at Buchenwald to pick qualified laborers and have seen their miserable living and working conditions at Dora and Mittelwerk. There is no evidence that you ever protested, publicly or privately, the use of slave laborers in the program, but you tried to improve the working conditions of a French prisoner who was also a scientist.

In 1944, the Nazi secret police (Gestapo) arrest you for saying you would rather work on going into space than building missiles, and you have also been overheard stating that the war is going poorly for the Nazis. You are released from prison because you are indispensable to the V-2 program. At the end of World War II, both the Russians and the Americans are aware of your work, and both countries want to capture you and possess V-2 rocket technology. In the spring of 1945, you and your fellow scientists agree that it would be best to surrender to the Americans because they have more resources to continue your research and because of the many rumors that the Russians are abusing and mistreating prisoners of war.

On May 2, 1945, you surrender to a private with the U.S. Forty-Fourth Infantry Division. You hope that you will be able to continue your life's work in the United States. At first, you work for the U.S. Army on missile projects. Eventually, you will become the head of NASA and the "father" of the U.S. space program. Without your guidance, many believe that the United States may never have reached the moon in 1969.

You have been asked by the U.S. government to answer the following question: "Why should you be hired by the U.S. government, given security clearances, and made a U.S. citizen instead of being denied entry to the U.S. due to your involvement with and use of forced laborers, which could be seen as a war crime?" Compose a one-page response to the government's question.

Suggested support materials

Excerpts from Wernher von Braun's biography by Michael J. Neufeld at <http://www.pbs.org/wgbh/nova/sputnik/vonbraun.html>.

Wernher von Braun's background at <http://www.v2rocket.com/start/chapters/vonbraun.html>.

Neufeld, M. J. "Wernher von Braun, the SS, and Concentration Camp Labor: Questions of Moral, Political, and Criminal Responsibility." *German Studies Review* 25.1 (2002): 57–78.

Identity Number 2: Rose Millichamp, British Citizen

You are Rose Millichamp, and your mother, Ivy Millichamp, was the last civilian killed by a V-2 rocket on March 27, 1945. You have heard that several scientists responsible for the V-2 rocket program, including Wernher von Braun, moved to the United States where they continue their research on rocketry. You are outraged that someone who is directly responsible for creating this weapon is not being punished, but seemingly being rewarded after causing so much pain and death. You have heard the excuse that people who did not cooperate with the Nazis were either shot or placed in concentration camps themselves, but this does not excuse Braun's behavior during the war or his work on V-2 rockets.

Like many killed in the V-2 attacks, your mother was a civilian who was killed in her home while doing laundry. Write a letter to the American government explaining and persuading them that Braun should be punished for his actions while working under the Nazis.

Suggested support materials

Readings on the V-1 and V-2 from La Coupole at <http://www.theotherside.co.uk/tm-heritage/background/v1v2.htm>.

V-1s and V-2s at "WW2 people's war: An archives of World War Two memories" at <http://www.bbc.co.uk/ww2peopleswar/categories/c54649/index.shtml>.

Video on the production of the V-2 at http://www.cosmo.org/mu_artifacts.htm.

"The V weapons campaign against the British, 1944–1945" at <http://docs.google.com/gview?a=v&q=cache:avAA0p8T6dMJ:london.iwm.org.uk/upload/package/4/dday/pdfs/VWeaponsCampaign.pdf+rose+millichamp+and+v-2+london&hl=en&gl=us>.

Identity Number 3: Ivan Itsov, Russian Prisoner of War at Mittelbau-Dora

You were brought to Mittelbau-Dora in November 1943 to work in the V-2 rocket factory. You spend much of your time lifting heavy machinery into place to make V-2 rocket parts. You are constantly under the watchful eyes of SS guards. Rest is difficult because you have to sleep on straw mats that are covered with lice and fleas. Since the factory still is used for mining, explosions happen day and night, so after a twelve-hour work day, it is almost impossible to get a full night's sleep. Plus, the explosions send dust and poisonous gas in the tunnels that have caused you to have a nasty cough.

Your diet consists of watery soup with no meat. You have lost more than twenty pounds in the first month at the camp. The only time you are allowed out of the tunnels is during weekly roll call, and then you have to stand for

hours with other prisoners in the wind, rain, and snow. Your clothes are little more than rags, so you are constantly chilled to the bone. What is worse is that there is never enough water to drink, and you have to go to the bathroom in barrels cut in half. Because of this, the smell in the tunnels is terrible.

After the war, you are liberated by American forces. You are asked to write a description of what it was like helping produce the V-2 rockets. Write a one-page response to the question, "What was it like for you at Mittelbau-Dora?"

Suggested support materials

Excerpt from the memoir of a Dora survivor at <http://www.scheisshausluck.com/book.html>.

Polish survivor's memory of a hanging at Dora at <http://www.ushmm.org/wlc/media.oj.php?lang=en&ModuleId=10005322&MediaId=1091>.

Identity Number 4: Michel Depierre, French Prisoner at Mittelbau-Dora

You are Michel Depierre (pronounced "day pee AIR"), a French prisoner of war. You are taken to the Mittelwerk-Dora camp, where you are forced to work twelve to eighteen hours a day, moving heavy equipment with very little food. You try to avoid trouble with the Kapos, or fellow prisoners appointed to be slave drivers and guards. Kapos manage their fellow-laborers in return for certain privileges, like more food. Some cruelly beat inmates. A Kapo hits you in the temple, and after this injury, your health continues to decline. You are sick most of the time with dysentery and pleurisy (a painful cough). You describe this as a "most cruel hell."

In 1945, Dora is being evacuated. You see guards beating the slaves as they are evacuating, so you hide. Soon you see the nearby town of Nordhausen burning in the distance. Dora is abandoned except for a few sick and dying prisoners. On April 11, 1945, the United States Army liberates the camp and distributes food to the remaining prisoners, all of whom are ill and starving.

After the war, you find out that Wernher von Braun, who was in charge of producing the V-2 rocket, is asking to be permitted to continue his research in the United States. Write a one-page response to the question, "What do you think about Wernher von Braun being allowed to move to the U.S. and continue his work on rocketry?"

Suggested support materials

Michel Depierre, Nordhausen survivor testimony, at <http://www.holocaustforgotten.com/nordhausen.htm>.

Heather Dunsmore, "The Story of Michel Depierre, French Resistance Fighter and Prisoner of the Nazis," at

<http://www.centuryofgenocide.com/exhibition/page4/page8/page8.html>.

Identity Number 5: President Dwight D. Eisenhower

You are the American president, Dwight D. Eisenhower. After World War II, several German-trained scientists and scholars like Wernher von Braun immigrated to the United States. Since von Braun claims he was not an enthusiastic Nazi or Nazi supporter, he was admitted as a legal immigrant to the United States in 1949. He spent fifteen years working for the U.S. Army making weapons, both ballistic missiles and rockets. Of all these scientists, von Braun has more experience than virtually anyone making missiles, which he did in Germany using slave labor.

Although you are not happy with von Braun's connection to the use of slave labor, in 1957, the Soviet Union launched the world's first space satellite, *Sputnik*. Many Americans are afraid that the Russians are becoming more scientifically advanced than Americans and are therefore winning the cold war (a struggle between the former Soviet Union and the United States). In 1960, you appoint von Braun as the head of the newly formed National Aeronautics and Space Administration (NASA), where he is charged with developing Saturn rockets that would eventually propel Americans to the moon, helping them to surpass the Russians in space flight.

You also decide to keep von Braun's file classified and to not make public his connection to slave labor at Mittelbau-Dora. You feel it would be too much of a distraction and that it might cause public sentiment to go against Dr. von Braun. Ultimately, winning the "space race" with the Soviet Union is the most important issue factor when making the decision to appoint Dr. von Braun to this post.

Write a memo to the joint chiefs of staff (the heads of the U.S. Navy, Army, Air Force, and Marines) justifying why you have allowed Dr. von Braun to head NASA and work on the U.S. space program.

Identity Number 6: Willie Ley

You are Willie Ley. You were born in Berlin, Germany, in 1906, and after attending the University of Berlin, you become fascinated with space flight. In 1927, you help found the Spaceflight Society in Germany so that you could experiment with building and launching rockets. In this group, you meet Wernher von Braun, who is quite young at this time. You disagree with Adolf Hitler's nationalistic plans to create the "Third Reich." Plus, you are horrified to see how Jews are beginning to be treated in your country. You leave Germany in 1935 and go to Great Britain and eventually to the United States. You become a U.S. citizen in 1944, where you continue writing about science and supporting space flight. When von Braun comes to the United States,

you are glad he will be continuing his work on space flight here. You would love one day to see people in space and on the moon.

In 1946, you see von Braun for the first time since leaving Germany. Braun tells you he just wants to make rockets. He cooperated with the Nazis only to continue doing the work he loved. You accept Braun's version of his involvement and write articles and books celebrating von Braun and his work until 1980.

A reporter from the local newspaper asks to interview you regarding your thoughts on Wernher von Braun's involvement with slave labor at Mittelbau-Dora. You agree to answer any questions the reporter puts in writing for you. The questions are as follows: Why and how do you defend Wernher von Braun's decision to remain in Germany and work for the Nazi regime? Should scientists who definitely used slave laborers in Germany have been permitted to enter the United States and work for the Armed Forces? Compose a one-page response to the questions.

Suggested support materials

Audio interview when Willie Ley talks with von Braun about early German rocket experiments (scroll down toward the end of the page to see the link) at <http://www.v2rocket.com/start/chapters/peene/peenemuende.html>. Mittelbau-Dora aftermath and trials at <http://www.ushmm.org/wlc/article.php?lang=en&ModuleId=10007321>.

Debrief

After all of the groups have presented their responses, the teacher should ask several questions of the class to ensure understanding and to facilitate additional critical thinking. Some relevant questions are:

1. Why did the Nazis use slave labor to produce the V-2 rocket?
2. Why do you think the Nazis used the V-2 rocket even though it was not very accurate? Were the Nazis justified in using a weapon of this type?
3. Why were conditions at Mittelbau-Dora so horrific? Why didn't the Nazis improve the conditions of the workers? Do you think improved conditions would have increased output?
4. How does the phrase "The end justifies the means" apply to the case of Dr. von Braun?
5. Do you think Wernher von Braun should have been allowed to come to the United States to continue his work with rockets, or should he have been prosecuted for war crimes? Why do you feel this way?
6. Arthur Rudolph embraced the Nazi Party and oversaw enslaved workers at Dora. He later emigrated to the United States, where he once again worked with

von Braun. Rudolph worked on the *Saturn V* rocket and with the Apollo program. After the U.S. Office of Special Investigations checked into Rudolph's Nazi affiliations, Rudolph left the United States and gave up his citizenship in 1983. In return, the United States agreed not to prosecute him for war crimes. Should Rudolph have been prosecuted? Why would Rudolph be forced out of the United States whereas von Braun lived in the United States until his death?

7. Should Eisenhower and the United States government have hidden information about von Braun and his past? Do you think the United States should have allowed some former Nazi party members into the country while denying others entry? How should the government have decided who was permitted to enter the United States?
8. The United States inherited technology, parts, and systems that slave laborers working at Dora developed and created. Should the United States have paid surviving slave laborers who built V-2s at Dora for their work developing a rocket and the production techniques to build it?

References

- Clegg, A. 1991. Games and simulations in social studies education. In *Handbook of research on social studies teaching and learning*, ed. James P. Shaver, 523–529. New York: Macmillan.
- Cruz, B. C., and S. A. Murthy. 2006. Breathing life into history: Using role-playing to engage students. *Social Studies and the Young Learner* 19(1): 4–8.
- Introduction: Mittelbau-Dora—Secret weapons and slave labor. 1997. In *Planet Dora: A memoir of the holocaust and the birth of the Space Age*, eds. Michael Neufeld and Yves Beon, IX–XII. New York: Perseus Books.
- McDaniel, K. 2000. The four elements of successful historical role-playing in the classroom. *The History Teacher* 33: 357–362.
- Neufeld, M. J. 1995. *The rocket and the Reich: Peenemünde and the coming of the ballistic missile era*. New York: Free Press.
- . 2002. Wernher von Braun, the SS, and concentration camp labor: Questions of moral, political, and criminal responsibility. *German Studies Review* 25.1: 57–78.
- Parker, W. 2009. *Social studies in elementary education*. Boston: Pearson Education.
- Waring, S., and M. Johnson. n.d. Slave labor in the space age. *Dora and the V-2: Slave labor in the space age*. University of Alabama in Huntsville. <http://dora.uah.edu/slavelabor.html> (accessed January 3, 2011).

Appendix. Additional resources

- Béon, Y., and Neufeld M. J. 1997. *Planet Dora: A memoir of the Holocaust and the birth of the space age*. [Uniform title: *Planète Dora*.] Boulder, CO: Westview Press.
- Dick, S. J. 2008. *Remembering the space age*. Washington, DC: National Aeronautics and Space Administration.
- Laney, M. 2008. Operation paperclip in Huntsville, Alabama. In *Remembering the Space Age*, ed. Steven J.

- Dick, 90–107. Washington, DC: National Aeronautics and Space Administration.
- Neufeld, J. 1990. *The development of ballistic missiles in the United States Air Force, 1945–1960*. General Histories. Washington, DC: Office of Air Force History.
- Neufeld, M. J. 2008. Creating a memory of the German rocket program for the Cold War. In *Remembering the space age*, ed. Steven J. Dick, 71–87. Washington, DC: National Aeronautics and Space Administration.
- . 2007. *Von Braun: Dreamer of space, engineer of war*. New York: Alfred A. Knopf; Washington, DC: Smithsonian National Air and Space Museum.
- Ambrose Clegg, “Games and simulations in social studies education,” in *Handbook of research on social studies teaching and learning*, ed. James P. Shaver (New York: Macmillan, 1991), 23.
- Barbara C. Cruz and Shalini A. Murthy, “Breathing life into history: using role-playing to engage students,” *Social Studies and the Young Learner* 19, no. 1 (2006): 4.
- Walter Parker, *Social studies in elementary education* (Boston: Pearson Education, 2009), 117.
- Kathryn McDaniel, “The four elements of successful historical role-playing in the classroom,” *The History Teacher*, 33 (2000): 357–362.
- Michael J. Neufeld, “Wernher Von Braun, the SS, and concentration camp labor: Questions of moral, political, and criminal responsibility,” *German Studies Review* 25, no. 1 (2002): 60.
- Michael, J. Neufeld, *The rocket and the Reich : Peenemünde and the coming of the ballistic missile era* (New York: Free Press, 1995)
- Stephen Waring and Molly Johnson, “Slave labor,” University of Alabama in Huntsville, <http://dora.uah.edu/slavelabor.html>
- “Introduction: Mittelbau-Dora—Secret weapons and slave labor,” in *Planet Dora: A memoir of the Holocaust and the birth of the space age*, ed. Michael Neufeld (New York: Perseus Books, 1997), xv.

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