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HVL LESSON TITLE:

OPERATION PAPERCLIP

DEVELOPED BY: ERIN COGGINS

OPERATION PAPERCLIP

GUIDING QUESTION:

What was Operation Paperclip
and did it have ethical consequences?

OVERVIEW:

World War II veteran, Arthur Hullett, became one of the first African-Americans to work on Redstone Arsenal. After watching a video detailing Arthur's meeting with Werhner Von Braun, students will learn about Operation Paperclip and the creation of America's Space Program.



SUBJECT(S):
Social Studies



WWII VETERAN(S):
Arthur Hullett



DURATION:
75 minutes

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“I put in an application to Marshall Space Flight Center. I was the first Black person they brought into the Marshall Space Flight Center. It was interesting.”

WWII Veteran Arthur Hullett

OVERVIEW:

World War II veteran, Arthur Hullett, became one of the first African-Americans to work on Redstone Arsenal. After watching a video detailing Arthur's meeting with Wernher Von Braun, students will learn about Operation Paperclip and the creation of America's Space Program.

HISTORICAL CONTEXT:

After World War II, the United States brought German and Austrian scientists and engineers to the United States through a secret program called Operation Paperclip. The program's goal was to use their expertise for military and industrial purposes.

One of those scientist was Wernher von Braun who settled in Huntsville, Alabama where his primary objective was to develop giant, Saturn rockets. He became the first director of the Marshall Space Flight Center and chief architect of the Saturn V rocket launch vehicle, the superbooster that would propel Americans to the moon.

OBJECTIVES:

At the conclusion of this lesson, students will be able to

- Understand the history of Operation Paperclip and its effect on America's Space Program.
- Participate in Philosophical Chairs to communicate their opinions for or against an issue.

STANDARDS:

AL: 11: A: 10

Describe the impact of WWII on the lives of American citizens, including advancements in science and technology.

AL: 12: A: 1.e

Describe the role of Alabama in the NASA Space Program.

AL: CCRI: Literacy: 1

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

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MATERIALS & DOCUMENTS

[Arthur Hullett Video](#)

Box of Paperclips

Paperclip Facts (Doc. A)

Annotated Note Activity (Doc B)

End of Activity Exercise (Doc C)

Computer Access

PROCEDURES

ACTIVITY 01

- Hand each student a paperclip as they enter the classroom so they have it for the lesson.
- Begin class with this question: Would you believe that there are some interesting facts about paperclips? Then proceed to project the list of interesting facts (Doc A). After reading the last fact (Operation Paperclip), be sure to inform students that von Braun and other German scientists settled in Huntsville, Alabama.

ACTIVITY 02

- Show the HVL Arthur Hullett Video.
- Instruct students to write down 5 details about Arthur's experience, spanning from before his service in WWII through his work at Redstone Arsenal. **NOTE:** Teachers can use this as an exit ticket.
- After the video, ask students what they wrote down regarding Arthur's experience at Redstone Arsenal. Guide them to a discussion Arthur's meeting with Wernher von Braun.

ACTIVITY 03

- Inform students that they are about to learn more about von Braun and Operation Paperclip.
- Distribute the Operation Paperclip Annotated Notes Activity (Doc. B). **NOTE:** Students can work independently or in groups of two-four.
- Read the directions aloud together. Set a timer for 30 minutes.

ACTIVITY 04

- Set up the Philosophical Chairs Activity. Note: [Instructions](#). Go over the instructions with students.
- Philosophical Chairs Statement: With what the Nazis represented, was it ethical for America to bring Nazi scientists to America via Operation Paperclip? **NOTE:** Teacher serves as moderator/facilitator.
- After the Philosophical Chairs activity, instruct students to complete the End of the Activity Exercise (Doc. C).

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METHOD FOR EXTENSION

- Assign a research project on the impact the German scientists of Operation Paperclip had on making Huntsville the Rocket City.
- Invite a Redstone Arsenal/NASA historian to visit the class to discuss the history and impact of Redstone Arsenal.
- Assign a research project on how other Allied countries utilized German scientists after World War II.

OPERATION PAPERCLIP

PAPERCLIP FACTS

DOC A



FACTS ABOUT THE PAPERCLIP

The paperclip was invented by Johaan Vaaler in Norway in 1889. Due to Norway not having patent laws at the time, Vaaler actually received his patent from Germany in 1899. Others have claimed the invention as well, including American Samuel Hayes who patented a paperclip invention in 1987.

The paperclip was invented the same year as the typewriter.

The Swedish word for paperclip is GEM.

The animated paperclip, Clippy, first appeared in Microsoft Office products in Office 97. Clippy was most famous for tapping the inside of the monitor when he appeared and regularly saying: "It looks like you are writing a letter." He last appeared in Office 2003.

Kyle McDonald from Canada managed to swap a red paperclip for a house by completing a series of online trades, swapping each item for something of a higher value. His project was called the Red Paperclip.

During World War II, Norwegians wore paperclips and paperclip necklaces as a sign of unity against Nazism and Anti-Semitism.

Operation Paperclip was an American operation to fly German scientists out of Germany and over to the USA after World War II. The Americans wanted to make use of the scientific and engineering intellect and expertise of the Germans, and to ensure that they didn't fall into the hands of the Soviet Union. One of them, Wernher von Braun, was a rocket scientist who would assist the Americans with developing the rockets that would eventually take people to the moon.

OPERATION PAPERCLIP

FILL-IN-NOTES

DOC B



ANNOTATED NOTES ACTIVITY

Directions: Read each short passage. Circle any key points or important vocabulary, summarize each passage, and write down any questions or thoughts.

The United States played a key part in the Allied victory in WWII. American soldiers fought and died to defeat the Nazis in the European theater which positioned the US government to claim its share of the proceeds when the war was settled in 1946. In the months after the signing of the German surrender, the US Army moved in to occupy the nation and began the covert effort to collect valuable scientific, military and industrial intelligence. This mission was carried out in complete secrecy but with great urgency as American officers knew that the Soviet Union was pursuing the exact same objective. The race to recruit and expatriate as many ex-Nazi scientists as possible to give the US an advantage in the growing Cold War set the stage for covert maneuvers everywhere and it became known as Operation Paperclip.

SUMMARY:

QUESTIONS/THOUGHTS:

In June of 1945 the Combined Intelligence Operations Subcommittee (precursor to the CIA) alerted President Truman and General Eisenhower that a vast trove of valuable German science officers had been evacuated to Saxony when Berlin fell under attack three months before. Saxony would become part of the Soviet zone of occupation which would mean hundreds of brilliant ex-Nazi minds would be captured by the Russians. In order to prevent Stalin from exploiting their intellect, Eisenhower approved Operation Overcast and dispatched hundreds of secret agents, disguised as Army officers throughout Saxony to deliver “orders” to the targeted Germans. These spies redirected 1,300 critical Nazi scientists and technicians to American POW camps instead of Soviet ones. In order to avoid suspicious Russian border guards, the scientists were told not to pack winter clothing as they would “be returning soon.”

OPERATION PAPERCLIP

FILL-IN-NOTES

DOC B



SUMMARY:

QUESTIONS/THOUGHTS:

Operation Dustbin succeeded in capturing 127 “high-valued targets” of valuable skillsets. They were held in interrogation centers for months as the CIA decided the legality of expatriating them to American soil. During this time, a standard patrol of the US 44th Armored Division stumbled across the crown jewel of Hitler’s missile design program, famed aerospace engineer Wernher Von Braun. Von Braun had elected to surrender to the Americans instead of the Soviets out of fear of what the Russians would do to him if they learned that his ballistic missile, the V-2 had been used against them in the Siege of Leningrad. The CIA took custody of Von Braun in August of 1945 and immediately offered to evacuate him from Germany where he would be safe from Soviet retribution. Von Braun agreed on the condition that his engineering team came with him and they were all transported to Boston, Massachusetts in September. Von Braun’s transfer broke the procedural stalemate and Operation Paperclip was approved. The Germans were transferred to an army base in Texas and held for two years.

SUMMARY:

QUESTIONS/THOUGHTS:

Operation Paperclip ended up sponsoring 2,214 German scientists, engineers and technicians to assist American research projects. Some were sent to Missouri to develop synthetic fuel to replace the aging Ford Motor Oil Compound. This program was a success and full synthetic oil went into mass production in 1952 and is still in use today. 130 aerospace engineers including Von Braun and his team were transported to Fort Bliss, Texas to create a new formula for jet fuel which they completed in 1947 and used to power the Bell-X1 past the sound barrier. The Paperclip scientists were then transferred to Redstone Arsenal where they successfully tested the Spartan 49, the American response to the German V-2. The advances made during these tests helped jumpstart the American space exploration program which eventually grew into the National Aeronautics and Space Administration (NASA). All these research programs were funded via military contracts which resulted in impressive achievements but the employees complained of low pay and poor living conditions.

OPERATION PAPERCLIP

FILL-IN-NOTES

DOC B



SUMMARY:

QUESTIONS/THOUGHTS:

Eighty-six ex-Nazis were transferred to Wright Field in Ohio where they worked to reverse-engineer Luftwaffe technology for use by the newly-formed US Air Force. These experiments led to breakthroughs in compression-exhaust engines for the Lockheed P-80 Shooting Star. American jets were able to fly faster, higher and maneuver better than their Soviet counterparts and Paperclip director Holgor Toftoy quipped to Truman that “our Germans are better than their Germans.” Additional experiments under geophysicist Helmut Weikmann and Adolf Buseman resulted in the swept wing lift design which allowed faster takeoffs from aircraft carrier decks. The Navy was consequently able to rebuild their standard carriers to make them more efficient, further increasing the advantage of the American navy over the Soviet Union’s.

SUMMARY:

QUESTIONS/THOUGHTS:

While the accomplishments of the air force scientists were commendable, they paled in comparison to the work of Von Braun and his team once they were finally freed from their limited laboratories in Texas. In 1952 Von Braun was permitted to begin application of his theory for a heavy-lift rocket engine, the Saturn which was significantly larger and more expensive than the jet engines being built in Ohio. Von Braun displayed the viability of his designs by creating a brand-new formula for liquid nitrogen rocket fuel that was more powerful than the diesel-based gasoline used in WWII-era engines. From 1952-1956 he worked in Camp Redstone in Alabama and applied his calculations to create the Redstone Rocket, the world’s first ICBM designed to carry nuclear warheads. Despite this success, Von Braun yearned to work on the Saturn and he repeatedly asked for funding to make his research a reality. US military officers were only interested in his work for use in weapons however and after the first successful flight of the Redstone, Von Braun was restricted to teaching American engineers the science behind his inventions so they could continue his work without him. However, events in the mid-1950s would prove how important Von Braun’s work was.

OPERATION PAPERCLIP

FILL-IN-NOTES

DOC B



SUMMARY:

QUESTIONS/THOUGHTS:

It took a while for Congress to approve all the funding that the Space Race required but once it began, it was difficult to stop. Younger Americans majored in science and engineering in much larger numbers and popular opinion revolved around beating the Russians to new innovations. In 1961, the pressure campaign to make the designs of Operation Paperclip a reality hit a fever pitch when President John F. Kennedy gave a speech in which he promised to win the space race by beating the Soviets to the moon. NASA, which had been created in 1958 had its budget quadrupled and the entire military and industrial might of the United States was targeted towards building the biggest, fastest rockets ever. The research and calculations completed by the Paperclip scientists became the bedrock of this effort and American engineers slowly began taking over direction of the space race from the ex-Nazis. Operation Paperclip came to an unofficial close on July 17th, 1969 when the Apollo 11 rocket successfully landed a manned mission on the moon. However, the program came under increasing scrutiny and criticisms in later years when the extent of Nazi involvement in the projects became public knowledge.

SUMMARY:

QUESTIONS/THOUGHTS:

OPERATION PAPERCLIP

END OF ACTIVITY EXERCISE

DOC C



OPERATION PAPERCLIP REFLECTION

Directions: Write a reflection that includes the comment that most challenged your thinking; whether you changed their mind or not; and how open-minded you were at the start of the conversation.