Hero SPOTLIGHT

Binary Beading

Overview

The Navajo code talkers are some of the most well-known of the code talkers. In this lesson, you will share an article about who the code talkers were, how they used computational thinking and creative problem solving to help protect other people's homelands and freedoms during WWII, and why their efforts are especially heroic given the history of the US government's treatment of Native Americans.

The article focuses particularly on using vocabulary from 02 Lesson: Activity: Encrypting Data about encryption and decryption.

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Standards

Computer Science
CSTA 1B-NI-05
CSTA Standards: https://www.csteachers.org/page/standards AZ Computer Science: https://www.azed.gov/sites/default/files/2018/10/Arizona%20Computer%20Science%20Standards_3_5_Final%2006.24.2019.pdf?id=5bc90a611dcb2510102f55b8

Social Justice
ID.3-5.2 JU.3-5.15
Learning for Justice: https://www.learningforjustice.org/sites/default/files/2021-11/LFJ-2111-Social-Justice-Standards-Anti-bias-framework-November-2021-11172021.pdf

English Language Arts
AZ 5.RI.2
AZ English Language Arts: https://www.azed.gov/sites/default/files/2016/12/5th%20Grade%20ELA%202016%20Final.pdf?id=585aa90eaadebe12481b8443

Math
NA
AZ Math: https://www.azed.gov/sites/default/files/2016/12/Math%20Final%2005Fifth%20Grade%20Standards%204_2_2018.pdf?id=58546f66aadebe13008c1a31

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Social Science
5.SP1.2 5.SP1.3 5G4.1 5.H4.1
AZ History and Social Studies: https://www.azed.gov/sites/default/files/2018/10/3-5%20Grade%20Band%20Standards%20at%20a%20Glance%206.10.19.pdf?id=5bd772a61dcb250b94e916ef

Learning Outcomes

By the end of this lesson, students should be able to:

- ☐ Describe how Navajo code talkers played a heroic role in helping the Allies in WWII
- ☐ Explain how the code talkers used their Indigenous languages to create an unbreakable code
- ☐ Label a diagram of the code talkers working together using vocabulary such as send, receive, encrypt, and decrypt

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Background & Media

As an instructor, you may want to have some additional media and background to help round out your own knowledge about the spotlighted hero or to help provide additional information for your students.

Books

[The Unbreakable Code: Hunter, Sara Hoagland, Miner, Julia](#)
John's mother is getting married and he has to leave the reservation. John's grandfather tells him he has the special unbreakable code to take with him. This story portrays the quiet pride of a Navajo code talker as he explains to his grandson how the Navajo language, faith and ingenuity helped win World War II.
Good Read-Aloud

[Chester Nez and the Unbreakable Code: A Navajo Code Talker's Story Hardcover – Picture Book, April 3, 2018](#)
As a young Navajo boy, Chester Nez had to leave the reservation and attend boarding school, where he was taught that his native language and culture were useless. But Chester refused to give up his heritage. Years later, during World War II, Chester—and other Navajo men like him—was recruited by the US Marines to use the Navajo language to create an unbreakable military code. Suddenly the language he had been told to forget was needed to fight a war. This powerful picture book biography contains backmatter including a timeline and a portion of the Navajo code, and also depicts the life of an original Navajo code talker while capturing the importance of heritage.
Good Read-Aloud

Articles

[The National WWII Museum Code Talkers Exhibit](#)
A nice article that provides interesting details about the code talkers.
High level

[Eisenhower Foundation Field Trip Enhancement](#)
This packet includes fifth-grade level articles and "mission" activities that give students the opportunity to encode and decode messages. [CW: This is a heavily militarized unit that contains many references and images of weapons]
Includes fun worksheet activities and is aimed at students in Grades 6-8

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Videos

[Interview with Navajo code talker Keith Little](#)
From C-SPAN interview series. This clip talks about why the code talkers agreed to help the military and the unique brilliance of the men who generated the codes.
Time estimate: 3 minutes

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Native Code Talkers: Computer Science Heroes

Navajo code talkers encrypting and decrypting messages. [Getty Images]

In 1941, the United States entered World War II to help the Allies fight the Japanese and German Axis Powers that were trying to take over Europe, the Soviet Union, and the Pacific. As the Allies worked to create plans to help defend areas that the Axis Powers were trying to invade, they realized that their planning messages kept getting **intercepted**. When the Axis Powers intercepted the messages, they would ruin all of the plans the Allies were working on. Even though the messages had been **encoded**, the Axis Powers had figured out how to **decode** them. How could the Allies send messages so that the Axis Powers would not be able to intercept and **decrypt** them?

The solution came through Native American code talkers. As home to hundreds of Native American tribes, the United States had citizens who were able to speak and understand unwritten languages that no one outside of tribal communities could understand.

During World War II, the US military developed special programs to recruit and train Native Americans who were fluent in their Indigenous languages and English to help the Allies as code talkers–or people who could communicate with each other using encoded messages. Even though many of the code talkers had been forced by the US government to attend boarding schools that tried to prevent them from using their Indigenous languages to communicate, many of them still carried their language with them. When the US military asked the code talkers to join the war effort, they agreed to help so they could protect their family and their homeland.

At least 14 Native Nations served as code talkers during World War II!

In addition to receiving basic military training, the code talkers had to develop and memorize a unique messaging code using their Indigenous language. The most well-known code talkers were the Navajo code talkers. The first code that was created used 26 Navajo terms that stood for each letter in the English alphabet. These terms were used to spell out

English words. For example, the Navajo word for "ant"--*wo-la-chee*–was used to represent the English letter "A". A second code was developed that translated the meaning of English words into Navajo. This was particularly tricky since many words in English, like "submarine" did not have a direct translation to a Navajo word or phrase. Instead, the code talkers created a special dictionary to represent ideas that could not be directly translated. For example, "submarine" was translated to the Navajo phrase *besh-lo* which means "iron fish." The heroic code talkers who created this dictionary used a lot of computational thinking and creative problem solving.

During battle, code talkers would work in pairs with a portable radio to send and receive messages. One person would **encrypt** English messages with the Navajo code and send them to other radiomen by speaking over the radio in the Navajo code. The other person would listen and receive messages from far away and would decrypt the messages from the Navajo code into English that all the other officers and soldiers could understand. After four years of hard battles in Europe and throughout the Pacific, the code talkers were able to help the Allies win the war and defend many people's homelands from being overrun by the German and Japanese forces.

Today, the codes developed by the code talkers still remain unbroken. According to Navajo code talker Keith Little, "Because of our teachings, our religion, our freedom...we decided that what had to be done to protect our land and our people had to be accomplished one way or another. It took us–the Navajo code talkers–to use our language to confuse the enemy...Our code was so uniquely devised that it was never deciphered."

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Assessment Ideas

Quiz Questions and Answers

Q: Who were the code talkers?
A: Native Americans who worked with the US military to encrypt and decrypt messages using their Native language
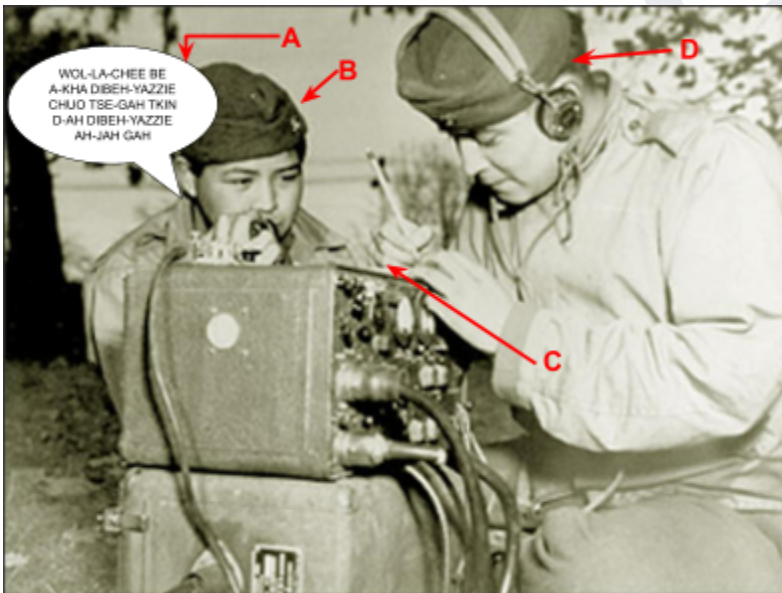
Q: Why was it surprising that the code talkers would help the US military?
A: Because many of them had been forced to go to government boarding schools as children so that they would forget how to use their Native language

Q: How did code talkers encrypt messages?
A: By translating them from English to a series of Navajo words representing letters of the alphabet, or by translating words and phrases using a special dictionary.

Q: Label the figure below with the following words: sender, receiver, encrypted message, decrypted message

A: A = sender; B = encrypted message; C = decrypted message; D = receiver

Reflection Questions

Why do you think the code talkers helped the US military even though the US government had forced many of them into boarding schools?

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What are some words that you use in your every day life that you think might need special dictionary codes? Can you think of what those codes might be?