Navajo Code Talkers

A lesson about how the Navajo influenced encryption and security in WWII by Thea Clark

Summary

During WWII the Marines enlisted Navajo code talkers to send messages. The Navajo language is not written down and is very difficult for non-native speakers to speak and understand. The Marines started with 29 Navajo men for this project. Their code became unbreakable and fast. They could decode 3 lines of English in 20 seconds versus the normal 30 minutes.

In this lesson students will hear audio of spoken Navajo language. They will make predictions on what language they think is being spoken. After learning the language they will research the Navajo code breakers. Students will then use the Navajo dictionary to practice creating and deciphering messages. Students will then be able to make connections to cybersecurity.

Summary of Historic Moment

The Navajo code talkers were a group of Navajo men who served in the U.S. Marine Corps during World War II and were trained to use their native language as a code to transmit sensitive military communications. The code they developed was based on the Navajo language and was used to transmit messages related to military operations and tactics. The Navajo language was chosen because it was unwritten and unknown to anyone outside of the Navajo Nation, making it an ideal choice for secure communication.

The code was designed to be unbreakable and was used extensively during the war, particularly in the Pacific Theater (including Guadalcanal, Tarawa, Peleliu, and Iwo Jima). The code talkers played a crucial role in the success of many military operations, including the Battle of Iwo Jima. Their work allowed the U.S. military to communicate securely behind enemy lines and helped to keep their operations and tactics confidential.

To create the code, the code talkers first developed a Navajo vocabulary for military terms and concepts. They then developed a system of symbols and terms to represent different letters of the alphabet and other common words. To transmit a message using the code, the code talkers would first translate the message into Navajo using the code vocabulary and symbols. They would then transmit the message using a variety of communication methods, including radio, telephone, and Morse code. To decode the message, the recipient would use a codebook that contained the Navajo-English translations of the code vocabulary and symbols. The process of decoding the message typically took about 20 seconds, compared to the 30 minutes it would have taken to decode a message written in English.

To stay safe, the code talkers were often assigned to communications units, where they worked behind the front lines to transmit messages. They also received special training in combat tactics and hand-to-hand combat to better protect themselves in the event that they were captured by the enemy. The code talkers' work was kept secret for many years after the war, and their contributions were not publicly recognized until the 1970s. Today, their efforts are widely recognized and honored as an important part of U.S. military history.

Objectives

- Understand the role of Code Talkers in WWII and their impact on security during the war
- Students will use a Navajo code dictionary to decipher messages

Standards Alignment

Computer Science (Grade 7)

- **CS 7.6:** The student will identify physical and digital security measures used to protect electronic information
- **CS 7.11:** The student will describe the development of new technologies in communication, entertainment, and business and their impact on American life.

US History II 1865-Present (Grade 7)

- **USII.1:** The student will demonstrate skills for historical thinking, geographical analysis, economic decision making, and responsible citizenship by a) analyzing and interpreting artifacts and primary and secondary sources to understand events in United States history; d) using evidence to draw conclusions and make generalizations;
- **USII.7:** The student will apply social science skills to understand the major causes and effects of American involvement in World War II by b) locating and describing the major events and turning points of the war in Europe and the Pacific

Materials

- Navajo Audio Weather Report
- Access to: Navajo Code Talkers Collection from the American Indian Museum
- Access to: CIA Site Navajo Code Talkers
- Navajo Code Talkers Research Guide

Vocabulary

Term	Definition
Computer security	refers to the protection of a computer's hardware and the data that it holds. Computer security can be implemented using passwords, encryption, and firewalls, and denying physical access to a computer's location.
Cryptography	Sometimes abbreviated as crypto, Cryptography is the practice and study of mathematically manipulating data so that it can be stored and transmitted

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	securely. The act of manipulating this data is called encryption, and the manipulated data is called encrypted. Encrypted data must undergo a reverse process, called decryption, before its original form is revealed. If the encryption method is mathematically sound, the encrypted data cannot be decrypted in a reasonable amount of time by anyone without a secret token, (encryption key). For more information about this process, including practical examples, see our encrypt definition.

Before the Lesson

Students should have knowledge of WWII prior to this lesson. This lesson focuses on a very specific piece of the success of the allies in the war. Students should also have prior knowledge of the Navajo peoples.

Outline

Formative Assessment Strategies

1. Ask students ways that military and government officials can share information with each other, but keep the information protected. Have students work in small groups to create a list. From their list a class anchor chart of ideas.

   Prompting questions:
   How can officials be sure information stays in the proper hands?
   What should officials do if information is compromised?

2. Have students listen to a weather report given in Navajo. Do not tell them that it is a weather report given in Navajo language.
   - Navajo Audio Weather Report

3. After students listen, ask them how they felt while listening to this? Ask them how they could figure out what was being said. Reveal that this is a weather report that is given in the Navajo language. Play the video for the students again showing the translation. Prompt the following discussion:
   How do you feel now that you know the context of the message?
   Do you think using Native American languages to send secure messages in time of war would be successful?

4. Explain to students that Navajo peoples worked with the Marine Corps during WWII to send encrypted messages. Students will use the resources from the American Indian Museum to research about the Navajo Code Talkers (linked in Materials above).

   Students will use the research guide to complete their research.

Teacher will monitor student discussion and encourage participation from all students.

Monitor student research as they work and provide intervention as necessary.

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5. Students will then create messages that classmates will have to decipher. Students will time other students on how long it takes them to decipher the messages.

6. Students will reflect as a whole group on the process of encrypting information and decrypting their classmates' information.
    - What made this easy or difficult?
    - How could prior knowledge of this language have helped you?
    - Why was the Navajo language selected for the Marine Corps encrypted messages?
    - How do we send secure messages today? How has it changed from this time period?
    - Do you think using computers to send encrypted messages is more secure than the Navajo Code Talkers?

Assessment Strategies

In addition to formative assessments (see *Outline* above), here are a few opportunities for students to show their learning by creating artifacts:

Simple Assessments

- Students create a coded message for classmates to decode
- Students write an exit ticket or paragraph about the influence the Navajo Code Talkers had on World War II

	Exemplary	***Proficient***	***Developing***
Explain Navajo Impact	The student is able to describe how the Navajo servicemen impacted the war efforts and explain why this language was specifically chosen.	The student is able to summarize the impact of using the Navajo language on the Marine Corps communication.	The student is unable to summarize the impact the Navajo language had on the Marine Corps communication.
Connects CodeTalking to Current Practice	The student is able to clearly and concisely connect how codebreaking in World War II connects to keeping information private and secure today.	The student can make some broad connections to codebreaking in World War II to today's information security needs.	The student is unable to discuss how codebreaking in World War II has led to advances in information security today.

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Some Accommodations & Extensions

Provide visuals of the video for students with hearing needs.

Partner students as appropriate for the research activity, or provide modified questions.

Provide text-to-speech accommodations as necessary for the research portion.

Provide scribe or speech-to-text accommodations as necessary for students who need assistance with writing.

Extensions:

- Students research Chapter 4 of the National Museum of the American Indian for more information on why and how these Native Americans served in the armed forces.
- Students create a timeline of communication technologies and overlay it with war time periods to identify when great advancements in communication were made.

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