

BOOMbox at Home

Decoding Challenge



During World War I and World War II, Native Americans played a special role in the Allied Forces. Native American soldiers, known as code talkers, developed a code for transmitting messages based on their languages. The most famous of these codes is the one created by the Navajo (or Diné). A dictionary based on the code was declassified in 1968. Using [that code dictionary](#), try to decode these messages! We'll also share more about code talkers in a [BOOMbox at Home blog post](#).

Encoded

- CHA-GEE BIH-TSE-DIH AL-NESHODI NE-TEH UT-ZAH-HA-DEZ-BIN
- BESH-LEGA-NAH-KIH GLOE-IH-DOT-SAH KHAC-DA BIH-NA-HAS-DZOH MA-E A-KHA NO-DA-IH GAH BILH TOH-DINEH-IH.
- YEEL-STOD CHAY-DA-GAHI BILH-BIGIH CHAH-HO-OH-LHAN-IH
- JI-DIN-NES-CHANH GLOE-EH-NA-AH-WO-HAI NAY-ES-TEE YO-AH-HOL-ZHOD.
- A-CHI DIBEH-YAZZIE A-KHA A-KEH-DI-GLINI AH-NAH KLESH BA-AH-NE-DI-TININ TLO-CHIN KLIZZIE-YAZZIE TKIN DZEH BI-SO-DIH NO-DA-IH SHUSH AH-JAD YEH-HES MOASI NASH-DOIE-TSO A-CHI TOISH-JEH DAH-NES-TSA BE-LA-SANA AH-LOSZ TSAH-AS-ZIH
- BE AH-NAH BA-GOSHI A-KHA LHA-CHA-EH TKIN A-CHIN KLIZZIE YEH-HES KLESH MA-E NO-DA-IH TSAH
- TA-BAS-DSISSI GLOE-IH-DOT-SAH WHO-NEH GLOE-EH-NA-AH-WO-HAI NE-OL IL-DAY
- AH-NA-SOZI-YAZZIE BIH-TSEE-DIH NA-WOL-NE AL-TAH-JE-JAY BI-TSAN-DEHN BESH-BE-CHA-HE
- A-DO-NIL A-TKEL-EL-INI
- BE-TAS-TNI AH-JAH AH-NAH THAN-ZIE TSIN-TLITI DZEH TKIN A-CHIN A-WOH TSE-GAH AH-NAH CLA-GI-AIH WOL-LA-CHEE AH-LOSZ KLIZZIE-YAZZIE TSE-NILL D-AH TSA-E-DONIN-EE TKIN A-KEH-DI-GLINI DZEH
- NASH-DOIE-TSO AH-NAH THAN-ZIE KLESH JEHA NE-AHS-JAH D-AH A-KHA A-WOH LIN DZEH TOISH-JEH TLO-CHIN NE-AHS-JAH BE-TAS-TNI SHUSH A-KHA AL-NA-AS-DZOH GLOE-IH CHA DZEH TSAH YEH-HES A-WOH AH-LOSZ AH-JAH NE-AHS-JAH NE-ZHONI AH-NAH TSAH DIBEH
- TSA-E-DONIN-EE TSE-NILL NASH-DOIE-TSO DIBEH-YAZZIE TKIN DIBEH NA-AS-TSO-SI TSAH-AS-ZIH CHUO TSE-NILL A-KEH-DI-GLINI A-KHA DAH-NES-TSA A-CHI A-WOH AH-NAH DIBEH DZEH BE-LA-SANA KLESH NE-AHS-JAH TSAH

No peeking! The decoded messages are on the next page.

Decoded

- The previous mission was successful.
- Captain will ambush zone four with ships.
- Seize tank within village.
- Retreat when visibility (is) clear.
- I love Skokie Public Library.
- Decoding is fun.
- Coast Guard will report when storm arrive(s).
- Fortify base. Expect attack from Germany.
- Execute saboteur.
- Meet me in the park at five.
- Let's go to the BOOMbox tomorrow.
- Fall is my favorite season.

What will you learn today?

BOOMbox at Home

Scytale

Scytale is an ancient form of encoding messages, thought to be invented by the Romans. This simple, low-tech encryption technique still works today. Try it for yourself!



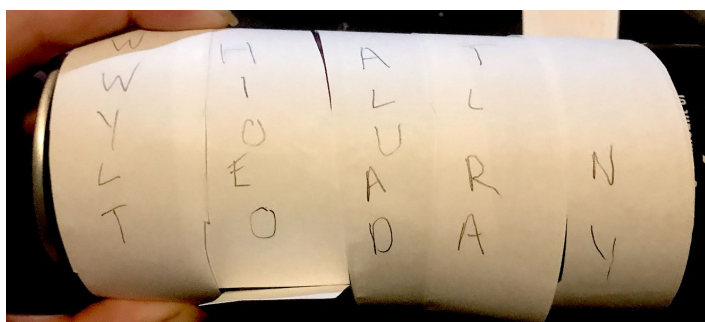
Supplies

- paper
- scissors
- tape
- pencil or pen
- a tube or cylinder (for example, paper towel or toilet paper roll, soup can, or soda can)

Instructions

- Create a long strip of paper by cutting a sheet of paper into strips and taping the strips together.
- Wrap the strip of paper around the cylinder. Clip or tape it in place.
- Write your message straight across, with one letter per loop. When you reach the end of the tube, start another row of text below the first.
- Remove the paper from the tube. You can no longer read the message!
- Pass the strip of paper on to your friend. When your friend wraps the paper around a cylinder of the same size, they'll be able to read your message.

Send a photo of your project to mycreation@skokielibrary.info and we may feature it on social media.



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Cipher Resource Guide

Throughout history, many different types of ciphers have been used to encode secret messages. Here is an overview of some ciphers that you can try out for yourself.



Types of Ciphers

Book Cipher

In this cipher, the sender and receiver agree to use a specific book as a key. The sender finds each of the words in the message in the book and writes out the location (page, line, and word) of each word. The receiver can then use the book to look up the words and decode the message. It is essential that both the sender and receiver are using exactly the same edition of the book.

Cardan Grille Cipher

In this cipher, the sender writes out a longer piece of text containing all of the words in the message. Then, they create a template with cut outs corresponding to the locations of the words in the message. When the receiver puts the template over the text, they see the message, but when the template is removed, the text looks like normal, unrelated writing.

Number Coding

In this cipher, numbers are assigned to each letter of the alphabet. The sender spells out the message using the corresponding numbers.

Pigpen Cipher

In this cipher, symbols are assigned to each letter of the alphabet. The sender spells out the message using the corresponding symbols.

Scytale

In this cipher, the sender and the receiver each have cylinders that are the same size. The sender wraps a long strip of paper around the cylinder and writes the message on the wrapped paper. When unwrapped, the strip of paper appears to have a random jumble of letters, but when the receiver wraps the strip around their cylinder, they can read the message. Learn more about how to use this type of cipher in [\[link activity sheet\]](#).

Additional Resources

Want to learn more about ciphers and cryptography?

- Watch this video for a [simple overview of cryptography](#).
- Get [information about these and other simple ciphers](#).
- Check out [more of the math involved in cryptography](#).

What will you learn today?

BOOMbox at Home

DIY Fabric Masks

These hand-sewn fabric masks are super simple to make using materials lying around at home! Before wearing the mask outside, make sure it complies with CDC guidelines. This activity uses a sharp needle and may require adult assistance.

Supplies

- Fabric of your choice
- Strips of elastic
- Scissors
- Needle
- Thread

Instructions

- Start by cutting the fabric into 5 inch × 7 inch rectangles. You will need 2 for each mask.
- Cut the elastic into 6 inch long strips. Again, you will need 2 for each mask.
- Sew or pin the elastic to the sides of the mask.
- Place the second mask piece on top of the first, right sides together.
- Sew around the mask, leaving a 1-2 inch opening so you can turn it right side out. Hand sew the opening closed.
- Fold the sides over and make two 1-inch pleats on each side.
- Try on your mask to make sure it fits, and test it out to make sure it passes CDC guidelines.

Want more detailed instructions?

Check out [this step by step guide](#) with pictures to master your DIY hand-sew mask!

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Images by Gina Michelle

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Mimicry and Camouflage

Mimicry and camouflage are utilized by animals in the wild to help protect them from predators. In this activity you can create your own form of camouflage.

Supplies

- Piece of paper, plus scratch paper
- Colorful markers
- Cut out of animal or insect

Instructions

- On a sheet of scratch paper, figure out a repeating pattern that you should like to draw.
- Draw and repeat said pattern on a piece of paper.
- Cut out your animal or insect image and try to match it up with the pattern
- Draw patterns on the animal or insect to match. Try moving it around to see how well it can blend in.

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Stomp Around in Bigfeet

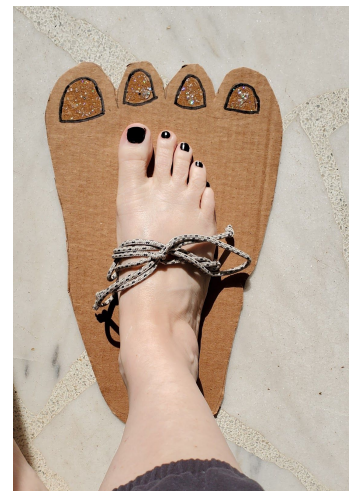
We can all use a safe and fun way to work out our frustrations. Why not become a Bigfoot (also known as Sasquatch or Yeti) and stomp around? Set the mood by watching the 2018 movie, *Smallfoot*, starring an adorable creature who goes down the mountain to see if humans really do exist.

Supplies

- cardboard pieces - 2 per person
- markers
- scissors
- pipe cleaners, shoe laces, or ribbon
- pencil

Instructions

- Draw the outline of a really big foot on a piece of cardboard. If you'd like, draw in toenails or other details.
- Cut it out.
- Flip it over and trace it as a template for the other foot.
- Cut out the second foot.
- Put your foot on the cardboard foot. Using a pencil, mark two spots on each side of your foot. These will be the holes for the laces.
- Poke holes in the spots you marked.
- Thread the pipe cleaners, laces or ribbon from the bottom to the top so the cardboard feet can be tied onto your feet.
- Enjoy stomping around!



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