



AFTERSCHOOL EXCHANGE ACTIVITY

SECRET CODES

PREPARATION

Grade Levels: 3-5

This activity would be most effective if delivered in three, 45 minute to one hour sessions

Prerequisites

Familiarize yourself with CYBERCHASE video #116: “Codename: Icky” which will be used in this activity. Bookmark the Web sites used for the Introductory Activity:

Cave Paintings –

www.tigtail.org/TIG/M_View/TVM/PreHistory/Europe/prehistory-europe.html

Your Name in Hieroglyphics -

www.upennmuseum.com/hieroglyphsreal.cgi

Morse Code Translator -

www.omnicron.com/ford/java/Nmorse.html

Materials Needed

Students will need:

- Pencil and paper

Group Leader will need:

- TV and VCR and a copy of the Cyberchase episode 116, “Codename: Icky”, or the ability to project the digitized clips on a TV or projector
- Chart paper and marker or blackboard and chalk
- Handout listing Web sites used in the Introductory Activity for each student
- Copies of page 22 from Digit’s Cyberchef book for each student
- Copies of the Zokzyvg Code handout for each student

Academic Goals

- reflect upon and learn about communication through other symbol systems – paintings, hieroglyphics, Morse Code
- analyze rules for a code
- apply rules to decipher a code and create a new message

Social Goals:

Students will:

- interact in small groups to locate specific information on educational Web sites

- work cooperatively to apply learning to decipher a coded message and create new messages
- design a secret code as a small group and demonstrate to the larger class

STEPS

Introductory Activity (30 minutes)

1. Ask students if they can think of ways people communicate without speaking. Write their ideas on the chart paper or blackboard (they may include: Braille, sign language, sports players using signals). Next, write these words on the board: cave dwellers and Ancient Egyptians. See if students know how these people long ago used to communicate. Write responses and then divide students into small groups to work on the computers together.
2. Pass out the list of Web sites to each student and have them go to the first site that features ancient cave paintings. Ask students to look at the photographs and write down what they think the pictures were communicating. After, have students share their answers. Then have students go to the museum Web site to look at hieroglyphics, a system of particular symbols the ancient Egyptians used to communicate. Have students take turns typing in their names to see how it would look in hieroglyphics and recreate them on their paper.
3. Next, explain to students that there is another way people have used to communicate through symbols, Morse Code. Check to see if any students have heard of this system and know how it was used. Tell students that beginning in the 19th century, people used it to send telegraphs (make sure they know what a telegraph was as well). Have them go to the third Web site on the sheet and type in a message and see it translated into Morse Code symbols. Then they can listen to the sounds of the message. Depending on time, each group can share their reactions to this code.

Activity 1 (30 minutes)

1. Tell students that they will now learn how to read and create codes. by watching clips from the series Cyberchase. Explain that in this clip the kids have to create a secret code in order to stop Hacker's attempts at listening to their plans for saving Icky, the slug.
2. Ask the students to see if they can figure out what the rules are for Inez's secret code. If you can't show the video clip from the Web, start the tape at the scene where you hear Jackie say, "I've got it! What if we make a code by replacing the words of our messages with numbers?" and you see Inez standing on her head and Jackie pacing in the submarine. Pause it when Inez says, "Later, okay? Let's look for Icky." and she is talking to Digit who is holding his cookbook. Ask the students for the rules, and write them on the chart paper or blackboard. (The three

numbers in her code refer to: page number in a book, line number on that page, placement of the secret word on the line).

3. Ask students to listen carefully and write down the coded message as they watch the next clip. If you can't show the clip from the Web, start the tape where you hear Jackie saying, "22-3-5, 22-3-6" as their submarine travels through the water. Pause the tape just after you hear Digit repeat the numbers "22-3-5, 22-3-6" and divide the students into small groups. Hand out page 22 from Digit's Cyberchef book and have students try to figure out the coded message using Inez's rules, and write it on the paper. When they have finished, have students share the message.
4. Ask students to compare their decoded message to the one deciphered by Inez and Digit. If you can't show the clip from the Web, continue the tape from the last pause point, where Inez says, "To decode the message, we find page 22..." and she is looking at the cookbook and sitting next to Digit in the submarine. Stop the tape after Digit points and says, "Icky's at the Hot Dog reef, let's move it!" Check to see if students figured out the coded message correctly. (page 22/line 3/word 5 is the word "hot"; page 22/line 3/word 6 is "dog"). Ask students how they were able to crack the code. (they knew the rules to make the code and the people sending and receiving it had the same book). Tell students that in the next activity they will continue with the Cyberchase episode about creating a new code.

Activity 2 (45 minutes to one hour)

1. Begin the activity by asking students to go around and say something new they learned about codes from the previous session.
2. Ask the students why the Cyber kids need to create a new code. (Hacker caught on to their book code.) Ask them to pay attention to the clip and see if they can figure out the rules for the new code the kids create. If you can't show the clip from the Web, start the tape when Matt says, "Ha-now that we've sent Hacker on a wild good chase, we can make up a new code for sending our messages" and onscreen the shot moves from an external view of the outside of the submarine to an inside view of the kids. Pause the tape when Digit says, "I got it!" as Icky looks on from a sandbank. Ask students what code the kids created. (A picture code – each picture relates to a unique number).
3. Ask students to figure out next how Icky communicated with the kids in order to be rescued. If you can't show the clip from the Web, start the tape where Digit is talking to Icky and says, "Listen, Ick, we're here to help you...". Stop the tape when Digit says, "He got the message!" referring to Icky, who is smiling. Ask how the kids communicate with Icky.. (They all knew the rules to create the secret code and could reverse them in order to communicate).
4. Tell students that they're going to watch the Cyberchase for Real segment. Ask them to pay attention to how Harry created a code with his friend Julio. Show the video clip, via the Web or VCR. Get student responses (he matched the alphabet

to cryptic symbols, with each letter corresponding to a different symbol). Ask students if they ever made up a code with a friend.

5. Tell students that they are going to learn a new secret code, the Zokzyvg Code. Write a message on chart paper or the blackboard using the code:
D s l r h b l f i u z e l i r g v X b y v i x s z h v x s z i z x g v i?
6. Ask students if anyone can figure out what the rules are for the code. Give students the handout that describes the rules. Have students finish the code on their sheet in order to be able to decipher the message and answer the question. (The question is: Who is your favorite Cyberchase character?) Then have each student write the answer to the question using the code. Compare answers aloud.

Activity 3 (45 minutes)

1. Hand out the sheets on the Zokzyvg Code to students and review the code with them from the previous session. Divide them into small groups of mixed ability and have each group create a secret message in the Zokzyvg Code. Then have them trade messages and have them decode each other's message. If desired, you can set this up as a competition to see which group can decode all of the messages the fastest.
2. Next, tell students it is their turn to make a secret code. Have each group work together to make up a code. Encourage students to be creative – they can use shapes, gestures, facial expressions, in addition to letters. After they make it up, have them demonstrate to the group and explain their system.

CREDITS

This AFTERSCHOOL EXCHANGE activity was created by Julie Spiegel Ph.D., Educational Specialist at The Point CDC, based on the CYBERCHASE (<http://www.pbskids.org/Cyberchase>) episode "Codename: Icky" and the Thirteen NTTI lesson plan "Shh...It's a Secret."
(http://www.thirteen.org/edonline/ntti/resources/lessons/m_ssh/index.html)

Zokzyvg Code

In order to write in Zokzyvg Code, you have to substitute the letters of our English alphabet with the letters found below.

Try to figure out the rules of the Zokzyvg Code. Do you see a connection between our alphabet and the Zokzyvg Code?

Regular Alphabet: a b c d e f g h i j k l m n o p q r s t u v w x y z

Zokzyvg Code: z y x

Example:

Message

Code

CAT

XZG

Now that you know the rules, you are ready to decode this message!

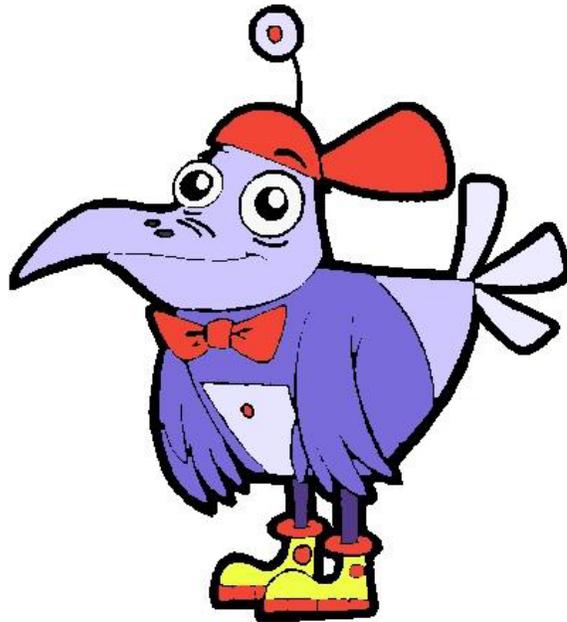
Reverse the rules found above.

What does the question ask?

Can you answer the question using the Zokzyvg Code?

D s l r h b l f i u z e l i r g v

X b y v i x s z h v x s z l z x g v i ?



Cooking can be
lots of fun outside.
Just grill a big hot dog
on the barbeque
for a tasty treat!