

Secret code game



Concept:
Investigation and inquiry



Recommended:
2nd grade



Length:
15-50 minutes

About this lesson

In this lesson, students will create their own word coding and decoding instrument. After using a physical tool to hide their words, students will learn a different way to code by using a system of symbols to represent letters. While we suggest 2nd grade for this activity, you can adapt it to suit the needs and interests of your class.

Learning objectives

By the end of this lesson, students will:

- Create a tool to hide and reveal words
- Encode words using symbols to represent letters
- Decode symbol-coded words to read messages
- Explain how new tools or technology can change how people communicate and work
- Solve problems while encoding and decoding words

Driving question

How can we use different types of codes to send secret messages?

Future ready skills

Critical thinking

Creative thinking

Problem solving

Lesson breakdown

25-35
minutes

Activity 1 - Mystery tube

In this activity, students will create their own coding and decoding instrument. This code game is based on the ancient use of secret messages. The secret message has two parts: a tube (cylinder) and a strip of paper that can be wound around the tube.

15-25
minutes

Activity 2 - Shape key

In this activity, students use a code made of shapes to represent letters and send a message.

In-app My Files

Upload photos of students' secret messages and decoders to the **My Files** app on their **Dpad**.

Lesson vocabulary

- Code
- Decode
- Symbol
- Key
- Pattern

ASCA standards

B-LS 1. Critical thinking skills to make informed decisions

B-LS 2. Creative approach to learning, tasks, and problem solving

B-LS 5. Media and technology skills to enhance learning

B-LS 9. Decision-making informed by gathering evidence

Mystery tube



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Inquiry prompts

- What is a secret?
- Why would some jobs (like detectives) need to keep some information a secret?

Instructions

In this activity, students will create their own coding and decoding instrument. This code game is based on the ancient use of secret messages. The secret message has two parts: a tube (cylinder) and a strip of paper that can be wound around the tube.

- 1 Ask students for examples of situations when someone might need to send secret messages to someone else. You can describe some ways in which secret messages have been sent in the past (embedded in quilts or attached to carrier pigeons, for example). Explain that sometimes a detective might need to send a top-secret coded message to his or her partner.
- 2 Have students decorate their paper towel tubes, then tape or glue paper strips together to form a single strip of paper long enough to wind around the tube. Secure the paper to the tube with paper clips or rubber bands, and ask students to write their secret message across the paper. You could ask them to write about their favorite book, what they want to be when they grow up, or any other topic.
- 3 When their messages have been written, students unwind the paper and exchange messages with a partner.
- 4 They then wrap their partner's message around their paper towel tube to read the secret message.

Tip: You can have older students devise more complicated codes using numbers to stand in for the letters. Have students create a key listing the letters of the alphabet with their corresponding numbers, then they can create a series of simple addition or subtraction problems for their partner to solve in order to figure out the number and corresponding letter. For example, if D=1; O=2; G=3 then 3-2; 1+1; 5-2 = DOG.

- 5 The tube and paper decoder is a low-tech way of sending secret messages. Ask students to think of more modern ways that someone might send a secret message. Use this opportunity to explain how jobs and skills can evolve over time due to changes in technology.

Materials required

- Paper, cut into 1" wide strips
- Scissors
- Paper towel rolls
- Tape or glue
- Paper clips or rubber bands
- Pencils, crayons, colored pencils, and markers

Artifacts

Student's tube decoder with the message wrapped around it.

Shape key



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Inquiry prompts

- How do symbols help us share information faster?
- Why do we use pictures or symbols to stand for words?
- Where else in our classroom or world do we see symbols that tell us what to do?

Instructions

In this activity, students explore symbolic coding, where one image represents a specific letter or idea.

- 1 Create a "symbol key" on the board (e.g., A = Star, B = Circle, C = Triangle).
- 2 Explain that this is a different form of code. Instead of using a cylinder as a tool, we are using a key made of symbols to hide our message.
- 3 Ask students to write a secret word or message using the symbols from the code on the board.
- 4 Have students swap papers with a partner and decode the message by looking at the key.
- 5 Conclude the activity with the inquiry prompts and by asking students: "Which secret was easier to send: the one with the tube or the one where you drew shapes? Why?"

Materials required

- Paper
- Pencils, markers
- Whiteboard/flip chart for the "Key"

Artifacts

Students' secret symbol messages and their corresponding keys.