

Cypherpunks Write Code

Students are introduced to the idea of codes as a way to hide and protect information. Through a hands-on craft, learners build a simple cipher wheel and use it to encode and decode Bitcoin-related vocabulary. The activity combines fine motor skills, logical thinking, and early cryptographic concepts while reinforcing new terminology in a playful and concrete way.

ACTIVITY TYPE Creative craft · Experiential learning	DURATION 45–60 min	PARTICIPATION Whole class · Individual
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OBJECTIVES

By the end of this activity, learners will:

- Understand the meaning of encode and decode; recognize that changing a code changes the output; use a cipher wheel to encode and decode simple words; correctly decode and encode selected Bitcoin vocabulary.

MATERIALS

- Printed cipher wheel templates with inner and outer alphabet rings (See Appendix A)
- Printed worksheet with encoded Bitcoin vocabulary (See Appendix B) — [B · Bitcoin vocabulary worksheet](#)
- Pencils, crayons, or markers
- Pre-made cipher wheel for demo, Brads or split pins for fastening wheels, Extra practice worksheets (*nice to have*)
- Scissors
- Whiteboard or poster board
- Projector demonstration, Left-handed scissors (*nice to have*)

PROCEDURE

OPENING

Teacher setup

1. Print and prepare cipher wheel templates and worksheets.
2. Pre-cut one large demonstration cipher wheel or prepare a visual version for the board.
3. Ensure scissors and pins are safely distributed.

PRE-ACTIVITY

5 minutes

1. Ask students if they know what a secret code is.
2. Ask where they have seen codes before such as games, secret messages, or locks.
3. Introduce the words encode and decode using simple language.
4. Explain that today they will learn how to hide and reveal words using a code.

Objective In Student's Words

- “Make a secret code tool and use it to hide and read words.”

ACTIVITY

35-45 minutes

Setup

1. Explain that letters can be shifted to make secret messages.

2. Draw the alphabet on the board and show a simple letter shift such as A becomes D.

Model

1. Demonstrate encoding a short word using a letter shift.
2. Demonstrate decoding the same word back to the original.
3. Introduce the cipher wheel and show how turning it changes the output letters.
4. Explain that the number of steps the wheel is turned changes the result.

Carry Out

Part 1 – Cipher Wheel Craft

1. Students cut out the inner and outer alphabet circles.
2. Students place the smaller circle on top of the larger one.
3. Students fasten the circles together with a pin so the wheel can turn freely.
4. Students test the wheel by aligning different letters.

KEY POINTS

1. Ask students to decode one word together as a class.
2. Check that students understand how changing the wheel changes the result.

Part 2 – Encode and Decode Practice

1. Students use their cipher wheel to decode words on the worksheet.
2. Students encode given Bitcoin vocabulary words using a chosen letter shift.
3. Circulates to support students and check understanding.

Reflection

- Ask students what happened when they changed the wheel position.
- Ask whether the same word always looks the same when the code changes.
- Ask why someone might want to hide information this way.

FOLLOW-UP

2 minutes

- Review key terms: encode, decode, code, message.

CLOSE

- Collect scissors and materials.
- Allow students to keep their cipher wheels.
- Final message to students: “Changing the code changes the message, but the meaning stays the same.”

NOTES

Classroom management

- Supervise scissor and pin use carefully.
- Encourage patience during the craft stage.

Extensions & Sponge Activities

- Timed decoding challenge using new encoded words.
- Play a decoding challenge such as cipher hangman where the encoded word is written on the board.

Differentiation

- Younger students: Shorter words and fixed letter shift, Use non-Bitcoin vocabulary
- Older students: Choose and record their own letter shift for others to solve.

- ELL/Accessibility: visual alphabet guides and peer support.
- Safety: blunt scissors and monitored pin use.

ADDITIONAL RESOURCES

- **C** • [40–60 Bitcoin vocabulary word cards](https://cdn.sanity.io/files/vje9ehw2/staging/430b5045a59d8f8c9d4c3d8f16b6502a3f764ece.pdf)

<https://cdn.sanity.io/files/vje9ehw2/staging/430b5045a59d8f8c9d4c3d8f16b6502a3f764ece.pdf>