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NOTES FOR TEACHERS

What Is a Blockchain?

Students learn what a blockchain is: a notebook of payments where each page carries a code made from the page before, kept and checked by many computers, so old pages are very hard to change.

Grades 9–12

1:33 video

Spending 12-9c

Free to use, no sign-up

STEP 1

Before watching

If everyone in the class kept a copy of the same notebook, how could you tell if someone secretly changed an old page in their copy?

STEP 2

Watch the episode

Bitcoin Basics, 1:33: thesteadyblock.com/episodes/what-is-a-blockchain/ (also on YouTube, @TheSteadyBlock)

STEP 3

Discussion questions

1. How does putting a code made from the previous page at the top of each new page link the whole notebook together?
2. Why would someone who changes an old page have to redo every later page, faster than everyone else adds new ones? What does that make very hard?
3. Supporters say a record that is very hard to change builds trust without a central keeper; critics point out that it also means mistakes and wrong payments stay in the record for good. Is a record that never forgets mostly a strength or a weakness? Give an example.

STEP 4

Exit quiz

1. In the episode's notebook, what is a block?

- A. A single bitcoin
- B. A page holding a batch of recent payments
- C. A computer that keeps the record
- D. A password

2. About how often is a new page (block) added?

- A. Every second
- B. Once a day
- C. About every 10 minutes
- D. Once a year

3. What links each page to the one before it?

- A. The page number only
- B. The date
- C. A signature from a bank
- D. A code made from the previous page

4. If someone changes one number on an old page, what happens?

- A. Nothing; nobody can tell
- B. Its code changes, so it no longer matches the next page
- C. The whole network shuts down
- D. The bitcoin on that page disappears

5. What trade-off does the episode mention?

- A. Pages can be erased easily
- B. Only banks can read the record
- C. Nothing gets erased, so mistakes stay in the record too
- D. The notebook has only one copy

Key terms

Block	A page of the record holding a batch of recent payments.
Blockchain	A chain of blocks, each linked to the one before by a code.
Code (hash)	A short fingerprint made from a page's contents; change anything on the page and the code comes out completely different.
Node	A computer that keeps a copy of the record and checks every page.

National standard

MAIN STANDARD • SPENDING 12-9C

Research financial technology options for financial record-keeping.

Part of standard Spending 12-9: “Having an organized system for keeping track of spending, saving, and investing makes it easier to make financial decisions.”

SAVING 12-3B

Compare and contrast the features of mobile payment accounts, cryptocurrency accounts, and checking/savings accounts.

SPENDING 8-4C

Summarize the advantages, disadvantages, risks, and protections of various payment methods.

A blockchain is a technology for keeping financial records. The episode shows how it keeps one shared record and why entries can't be erased, which supports Spending 12-9c's research into record-keeping technology and the risks and protections in Spending 8-4c.

From the National Standards for Personal Financial Education (Council for Economic Education and Jump\$tart Coalition, 2021), Spending grade 12, p. 19; Saving grade 12, p. 23; Spending grade 8, p. 17.

Numbers in this episode

As of October 2026

- ~10 min: New pages (blocks) are added about every 10 minutes on average; the network adjusts the difficulty to keep that pace.
- Jan 3, 2009: The first page, block 0 (the “genesis block”), is timestamped January 3, 2009, 18:15 UTC. It is the only page with no page before it.
- 970,000+: Pages in bitcoin's chain on October 10, 2026: the block height was about 970,790 (mempool.space and blockchain.info).

- 25,800: Publicly reachable computers (nodes) keeping and checking a copy on October 10, 2026, according to btcnodes.io; many more run without being reachable.
- 4 of 64: The page codes shown are real SHA-256 fingerprints of the pictured pages, cut to 4 characters. Bitcoin's real block codes are 64 characters long.

Where each number comes from is listed on the [episode page](#).

Further reading

For students or teachers who want to go deeper.

FOR STUDENTS

Virtual Currency (<https://dfi.wa.gov/consumers/virtual-currency>)

Washington State Department of Financial Institutions

A state regulator's plain-language page: payments are recorded on a public ledger called a blockchain, why that isn't fully anonymous, and the main risks.

FOR TEACHERS

Bitcoin: A Peer-to-Peer Electronic Cash System (<https://nakamotoinstitute.org/library/bitcoin/>)

Satoshi Nakamoto (2008), Satoshi Nakamoto Institute copy

Sections 3 and 4 describe each block carrying the code (hash) of the block before it, the idea behind the episode's glued pages.

FOR TEACHERS

mempool.space (<https://mempool.space/>)

The Mempool Open Source Project

A free, open-source block explorer. In class, open the most recent blocks and watch a new page arrive about every 10 minutes.

Links checked October 2026.

Free to use in class. Educational content only, not financial or investment advice.

Answer key: What Is a Blockchain?

1. **B. A page holding a batch of recent payments**

Each page of the notebook, holding a batch of recent payments, is called a block.

2. **C. About every 10 minutes**

A new page is added about every 10 minutes on average.

3. **D. A code made from the previous page**

Each new page starts with a code made from the page before it, so the pages are glued together all the way back to page one.

4. **B. Its code changes, so it no longer matches the next page**

A changed page gets a completely different code, so the break shows up and runs all the way to today.

5. **C. Nothing gets erased, so mistakes stay in the record too**

The same feature that protects old pages means mistakes can't be erased either.

Educational content only, not financial or investment advice.

Episode narration uses a synthetic voice.