

Financial Literacy with Mr. 401(k)
[‘FinLit with Mr. 401(k)’]
Winter Term 2023-2024
January 24, 2024

Digital Assets: Bitcoin

Class 18:

Bitcoin 101 – The Basics





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Introduction to Bitcoin



Bitcoin is digital money. **It has no physical form.** It has no issuer.



Bitcoin functions like other forms of money: Medium of Exchange; Store of Value; and Unit of Account

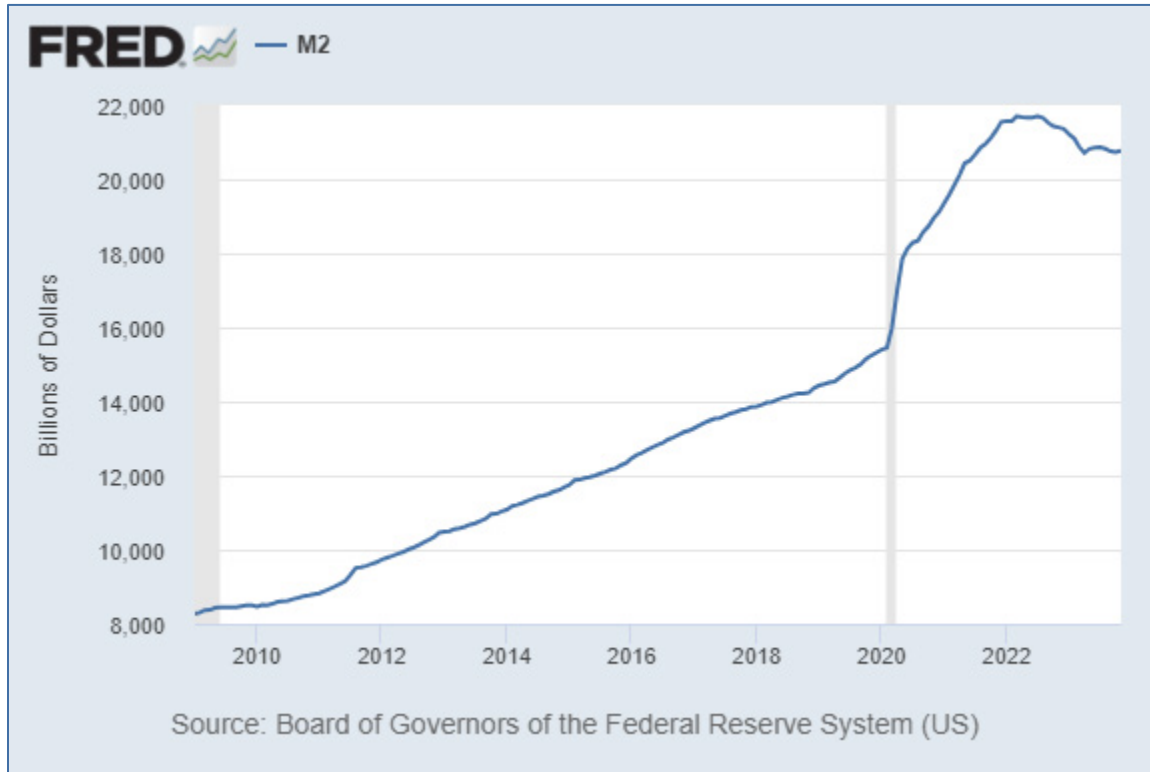


Bitcoin can be used to buy goods, services, and information.

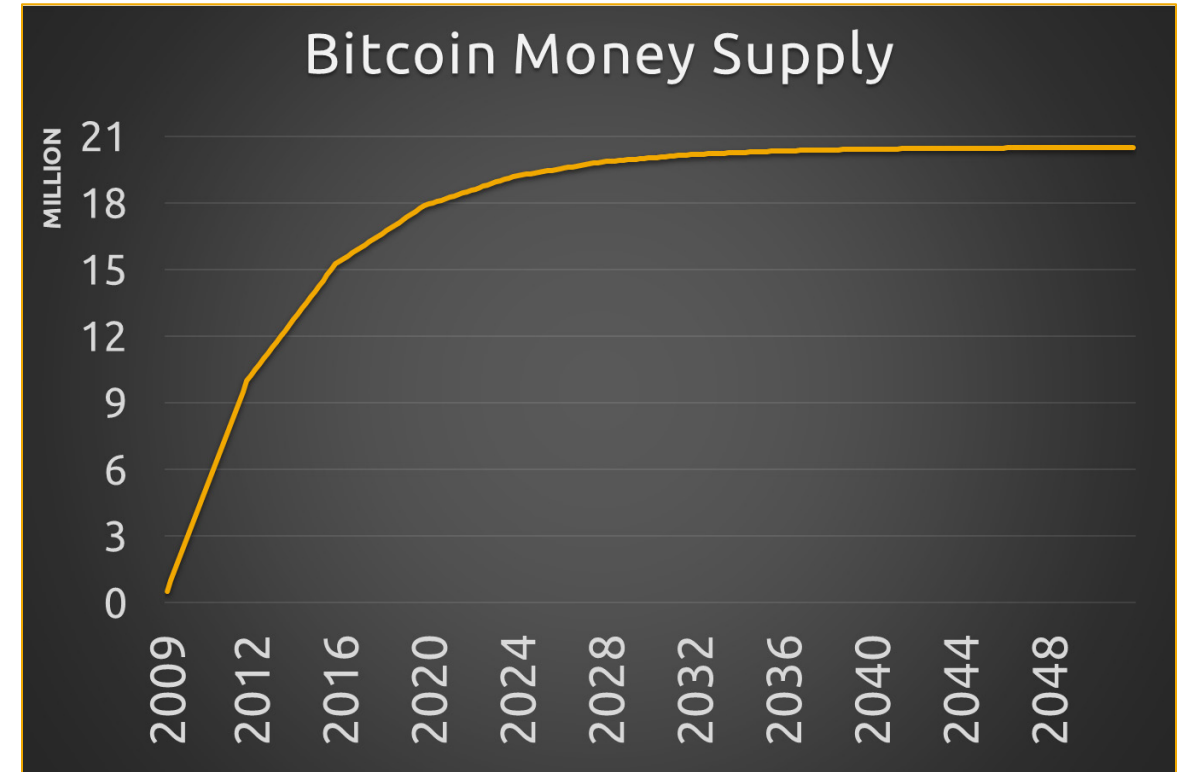


Bitcoin is not issued by any government, nor is it backed by any government.

Money Supply: U.S. Dollars vs. Bitcoin



The supply of U.S. Dollars is **elastic**. New U.S. Dollars are 'created' through fractional reserve bank lending.



The supply of Bitcoin is fixed or **inelastic**. By design, there can never be more than 21 million Bitcoin.

Bitcoin Divisibility

Bitcoin is divisible to **8** decimal points.

1 Bitcoin (₿) = 100,000,000 Satoshis (♠)

1 Satoshi (♠) = 0.00000001 Bitcoin (₿)

U.S. Dollar is divisible to **2** decimal points.

1 U.S. Dollar (\$) = 100 U.S. Cents (¢)

1 U.S. Cent (¢) = 0.01 U.S. Dollar (\$)

Technology Behind Bitcoin



Peer-to-Peer Network

Users broadcast Bitcoin spending transactions to a network of computers, which responsible for confirming transactions



Confirming Transactions

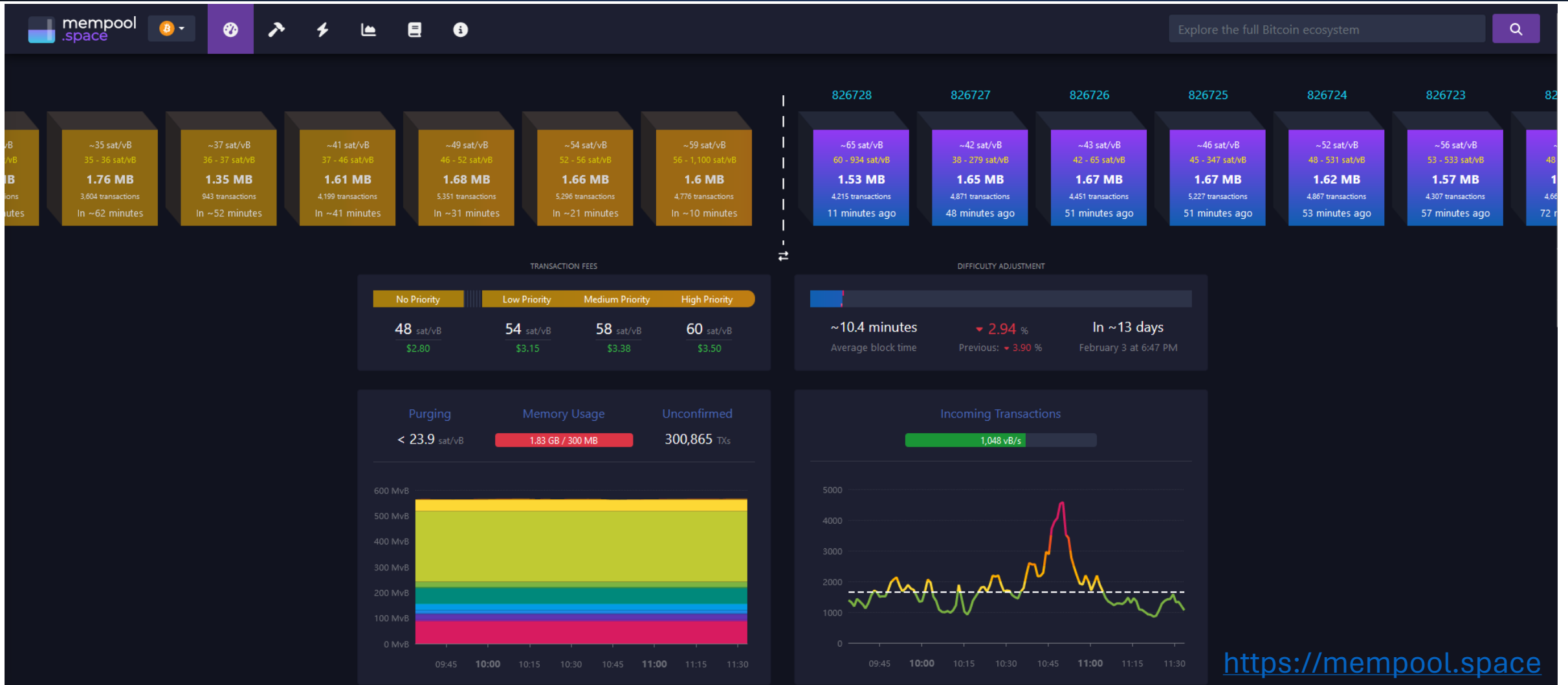
Specialized computers confirm a block of transactions by solving computationally intensive cryptographic puzzles



The Bitcoin Blockchain

Blocks of transactions are recorded and linked together on a permanent public ledger, creating a metaphorical chain of blocks – a Blockchain

Visualizing the Bitcoin Blockchain

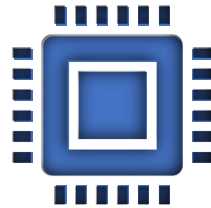


Understanding Bitcoin Mining



What Is It?

Mining is the computational work to confirm transactions and add blocks of transactions to the Bitcoin Blockchain.



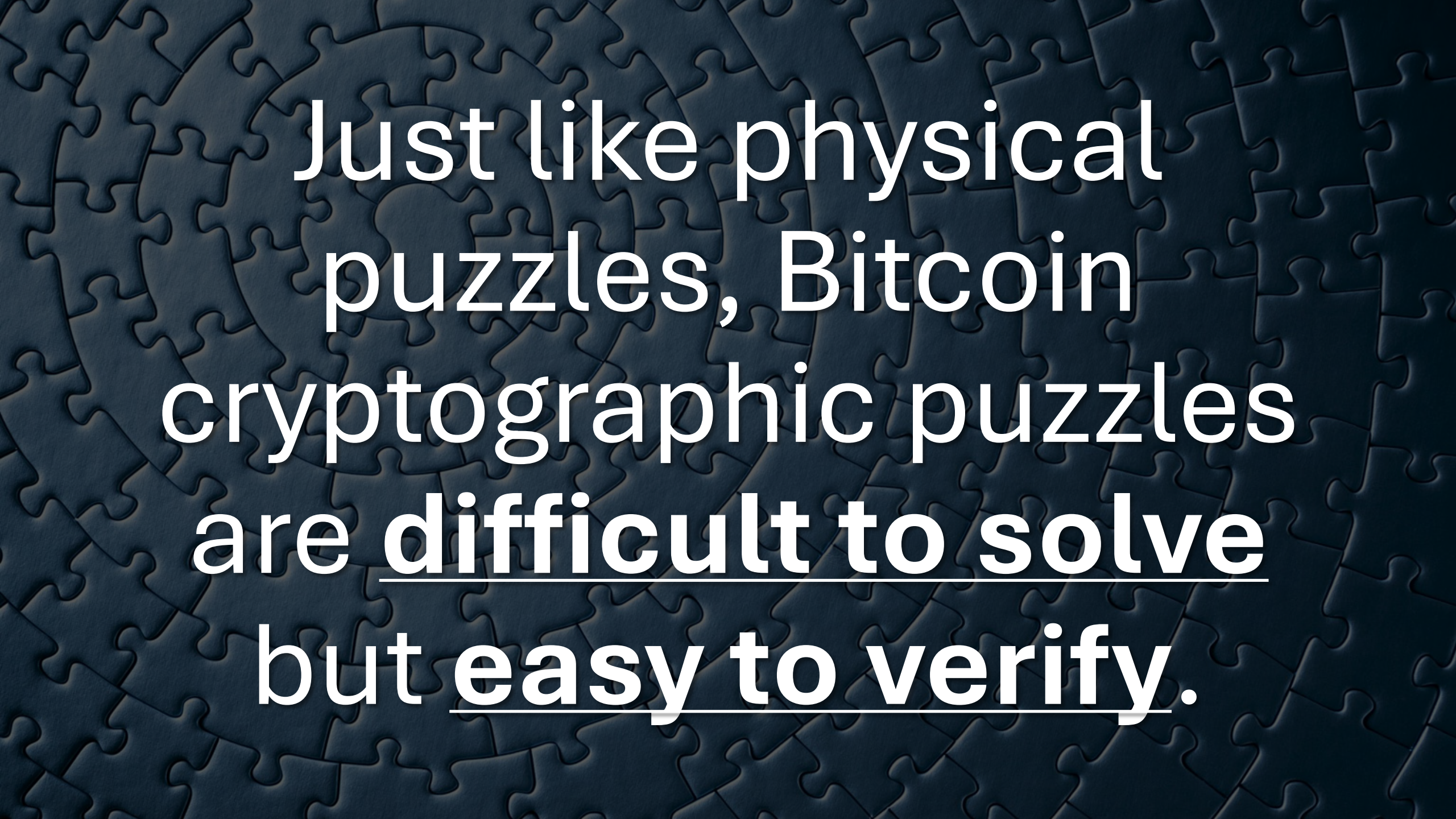
What are Miners?

Miners are powerful specialized computers designed to solve computationally intensive Bitcoin cryptographic puzzles.



Why Mine?

The first miner to solve the cryptographic puzzle and confirm a block of transactions is rewarded with the Bitcoin block subsidy and fees.



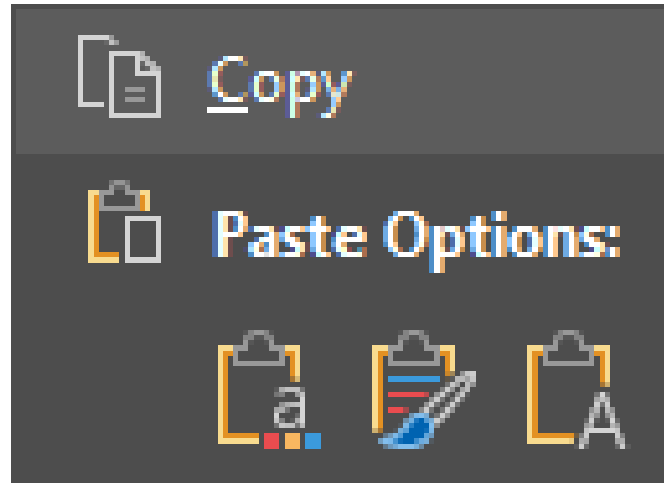
Just like physical
puzzles, Bitcoin
cryptographic puzzles
are difficult to solve
but easy to verify.



Class Discussion

Why do you think Bitcoin mining might be necessary?

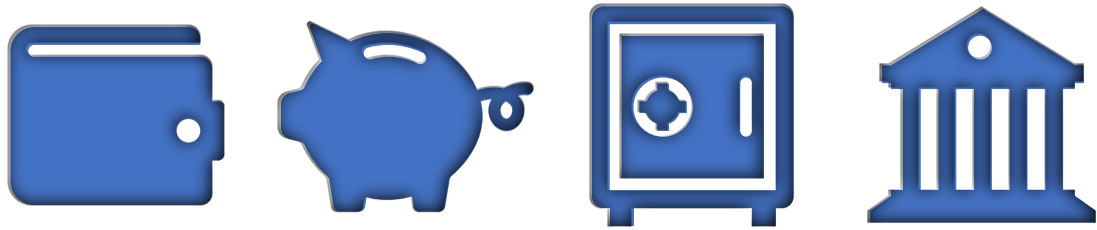
Blockchain Security and Fraud Mitigation



Without banks, you need a way to ensure a person cannot “re-spend” the same digital money over and over. Imagine if people could simply copy/paste digital money! The digital money would be worthless. Bitcoin’s cryptographic puzzles make it virtually impossible to change a block of transactions after they are confirmed. The miners are like security guards who ensure the rules are being followed.

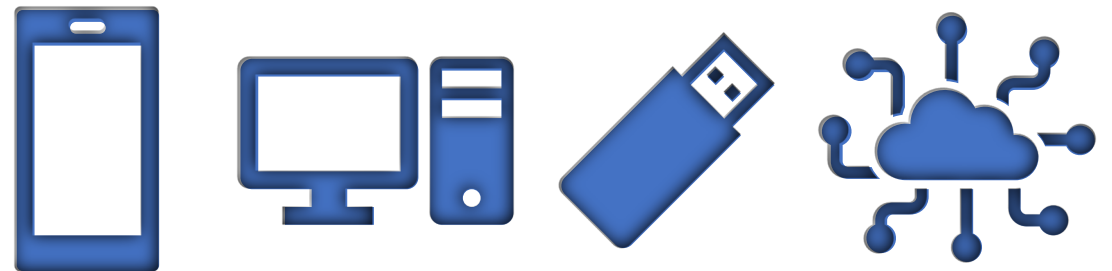
Holding Other Money Compared to Hodling Bitcoin

Government issued currencies can be **self-custodied**. People can keep it in physical wallets, piggy banks, home safes, or **keep it in the custody of banks**.



Be Aware: People trade **access and their exclusive control** in exchange for **convenience** when they place money in the custody of others.

Bitcoin can also be **self-custodied**. People can access it with apps and digital wallets or **keep Bitcoin in the custody of cryptocurrency exchanges**.



Important: Bitcoin exists on the Bitcoin blockchain, not on a device. A device merely provides the access to transact the Bitcoin.

How to Get Bitcoin or Satoshis



Buy

Bitcoin from a broker, cryptocurrency exchange, payment service, or person



Mine

Bitcoin using specialized computers



Receive Gifts

of Bitcoin or Satoshis from family or friends



Trade

goods, services, or information and ask to be paid in Bitcoin

Bitcoin Market Value



Supply/Demand

Determined by the supply of Bitcoin and demand for Bitcoin relative to other assets in the markets.



Volatile

Bitcoin is a new asset class and is highly volatile – price swings can be large and occur rapidly.



Purposes

People today may hodl Bitcoin for investment and/or may use it for purchases.

Bitcoin's Potential and Challenges



AI Bots

AI will need a form of money to transact with other AI bots in the future. Bitcoin may be well suited for this application.



Digital Gold

With a fixed supply, Bitcoin may be well suited to store value digitally and mitigate fiat monetary inflation.



Payments

Bitcoin may become a mainstream payment method in the future. Merchant adoption is growing.



Regulation

Laws have not kept up with Bitcoin adoption and development. Future regulations may impact adoption.

Bitcoin Features and Limitations

- **Censorship Resistant:** No one can prevent you from spending your Bitcoin.
- **Decentralized:** No individual entity controls Bitcoin.
- **Fixed Supply:** It is difficult to debase Bitcoin like fiat currencies.
- **Network Effect:** Adoption has grown faster than other cryptocurrencies.
- **Permissionless:** Anyone can use Bitcoin – you do not need the permission of banks or governments.
- **Cryptocurrency Scams:** There are many scammers in cryptocurrency.
- **No Support Lines:** Bitcoin is not a company. There is no support hotline. Users need to find their own solutions.
- **Taxation:** No one can legally avoid taxes – it is important to be mindful of tax laws when using Bitcoin.
- **Transaction Irreversibility:** Bitcoin transactions cannot be reversed – there are no refunds.

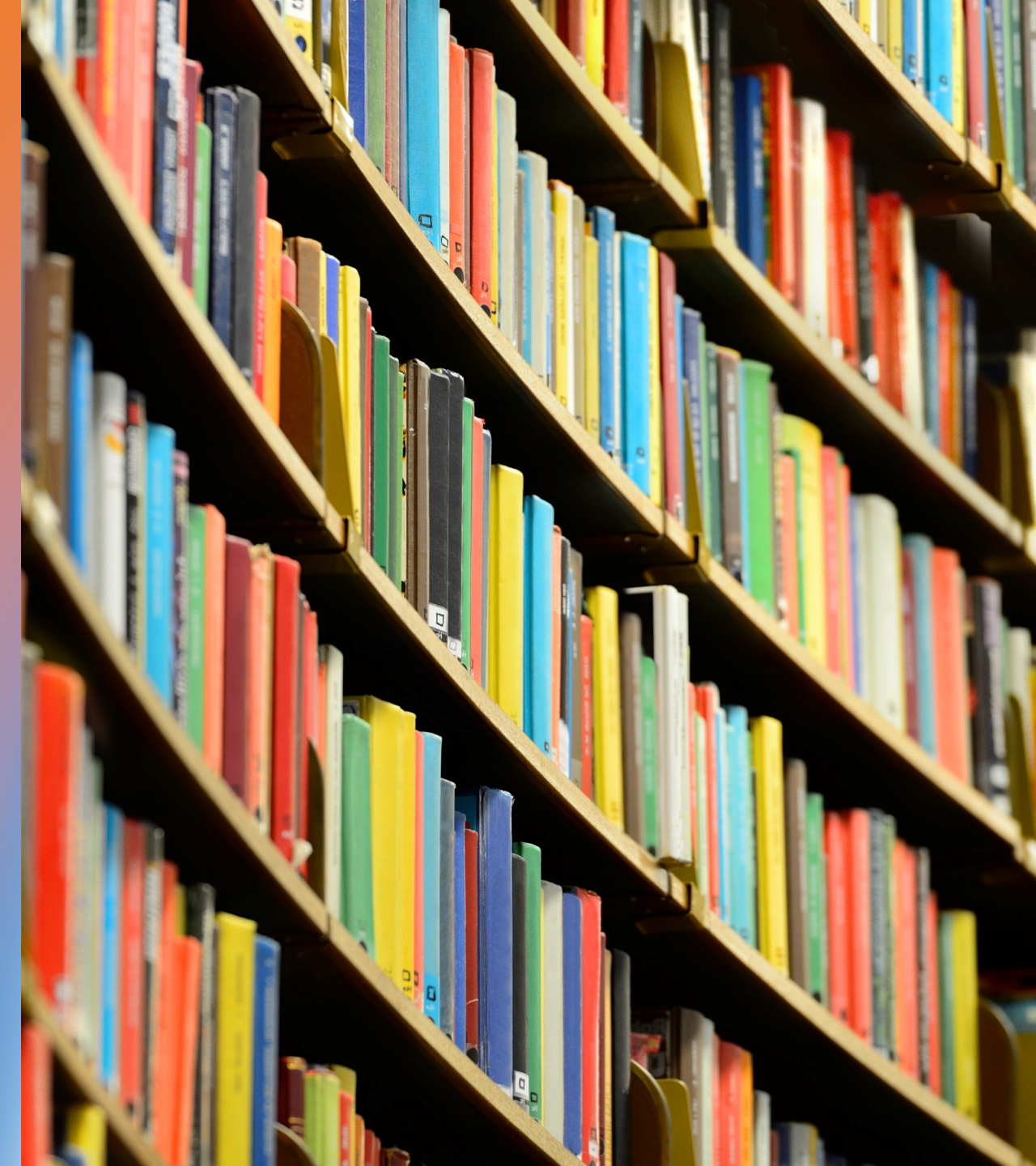


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Three Key Takeaways

1. Bitcoin is digital money with a fixed supply of 21 million units, that can be sent person-to-person throughout the globe.
2. Bitcoin miners solve computationally intensive cryptographic puzzles, which secures the Bitcoin Blockchain and mitigates fraud.
3. Bitcoin's value is determined by market forces and can be volatile.



Where to Learn More

- [Bitcoin Education](#) by Petros Koumantaros
- [Bitcoin Money: A Tale of Bitville](#)
[Discovering Good Money](#) by Michael Caras (Author), Marina Yakubivska (Illustrator)
- [The Bullish Case for Bitcoin](#) by Vijay Boyapati