



Federal Reserve
Bank of Dallas

Rise of Cryptocurrency

Ally Hoffman, Senior Risk Specialist

June 8, 2021

Ally.Hoffman@dal.frb.org

The views expressed are my own and do not necessarily reflect official positions of the Federal Reserve System.

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings



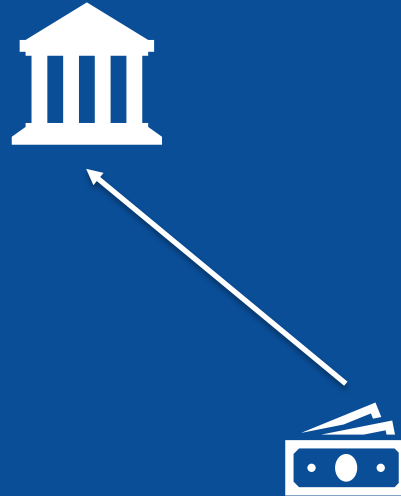
What is blockchain?



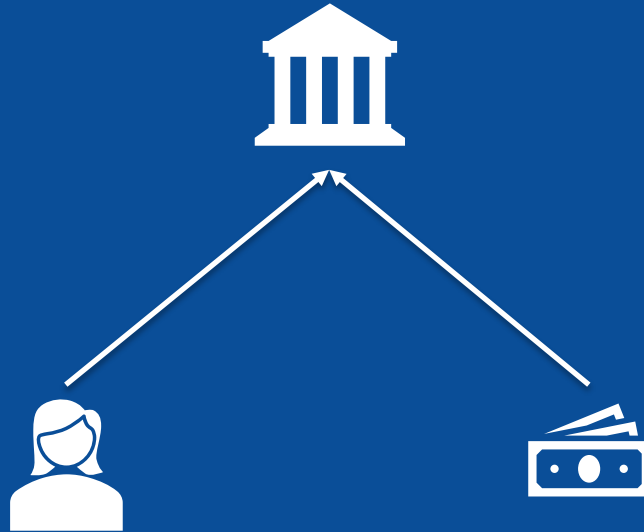
What is blockchain?



What is blockchain?



What is blockchain?



What is blockchain?





What is blockchain?



What is blockchain?

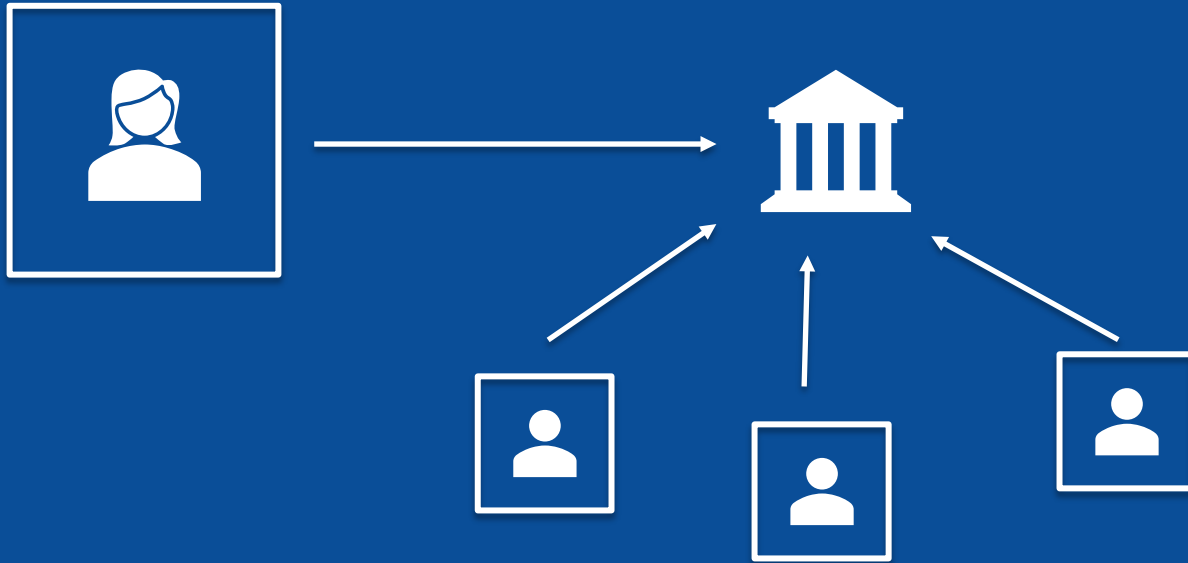




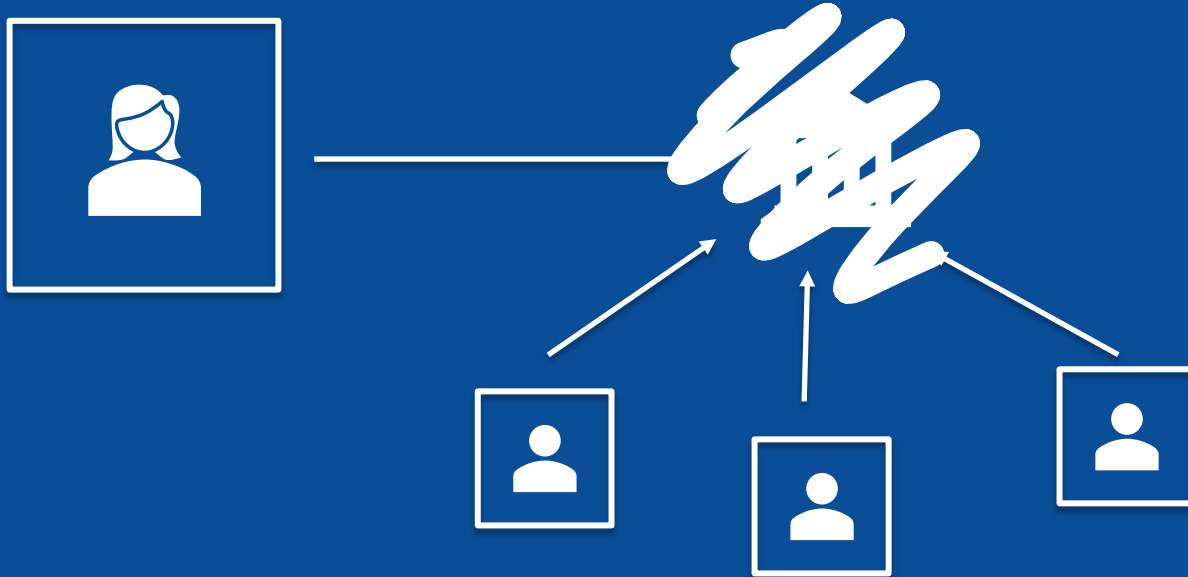
What is blockchain?



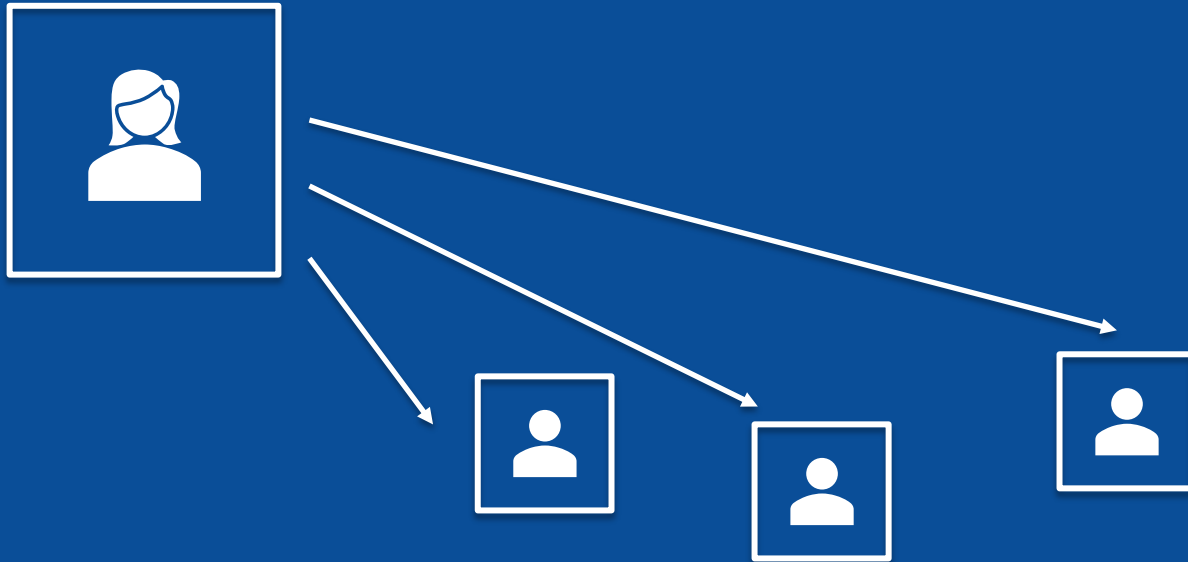
What is blockchain?



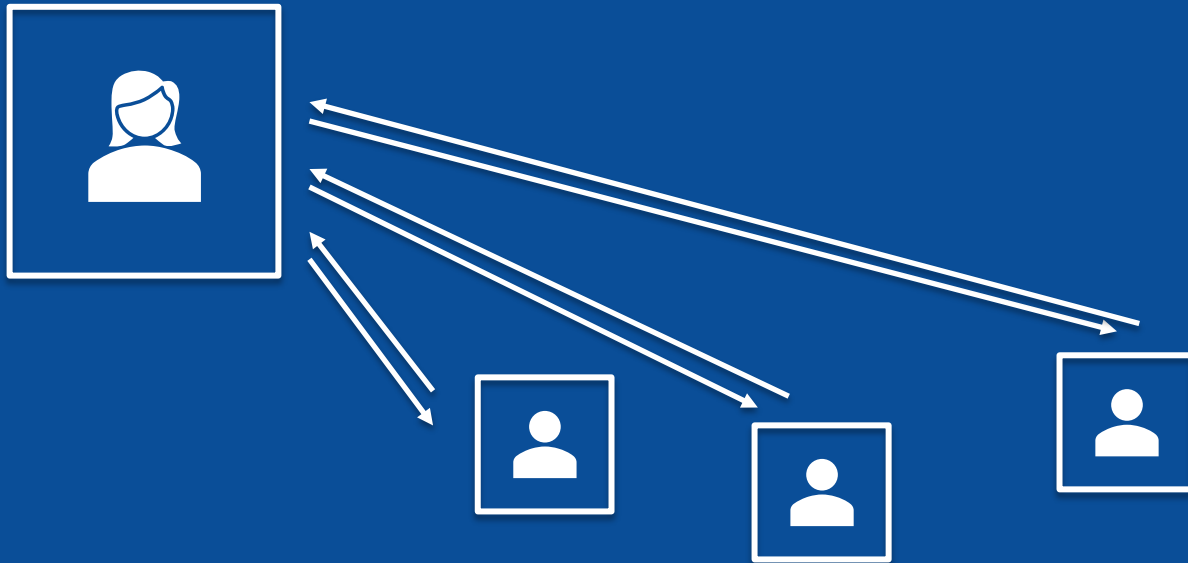
What is blockchain?



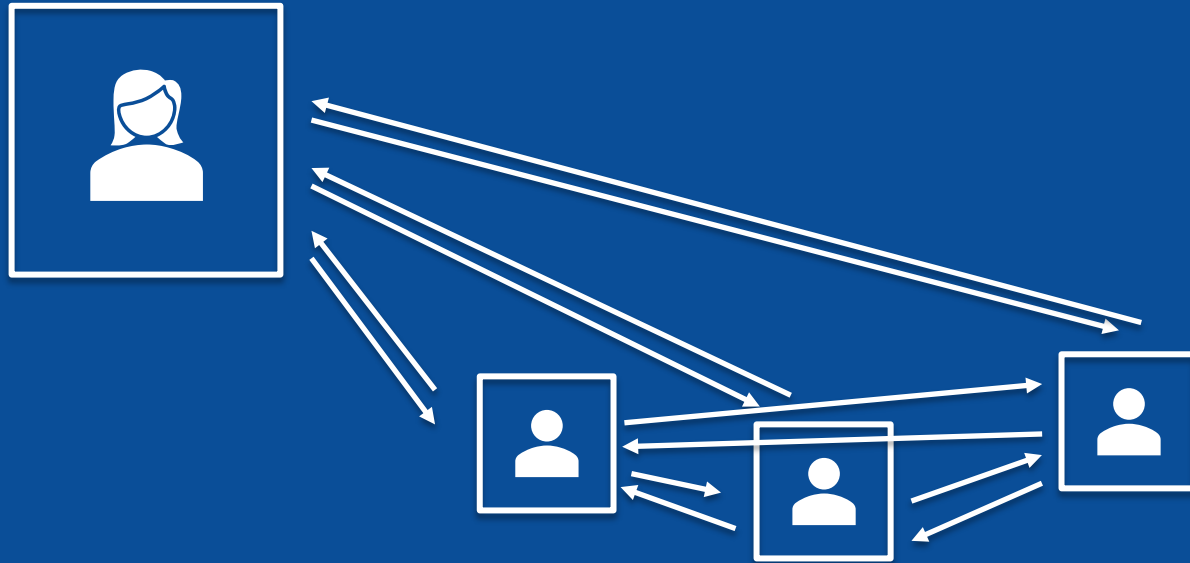
What is blockchain?



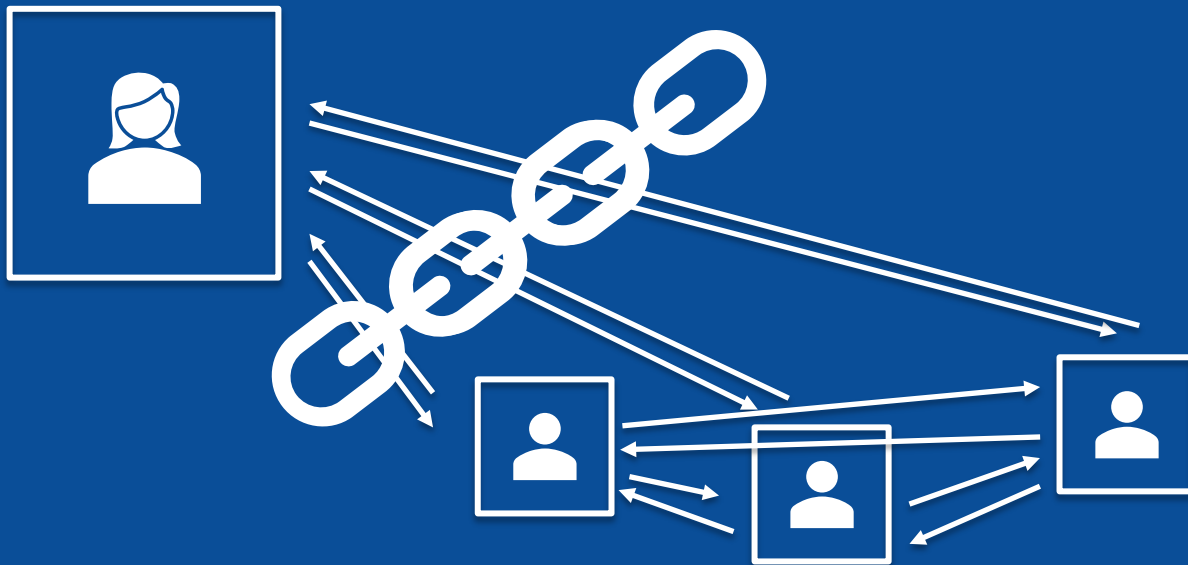
What is blockchain?



What is blockchain?



What is blockchain?

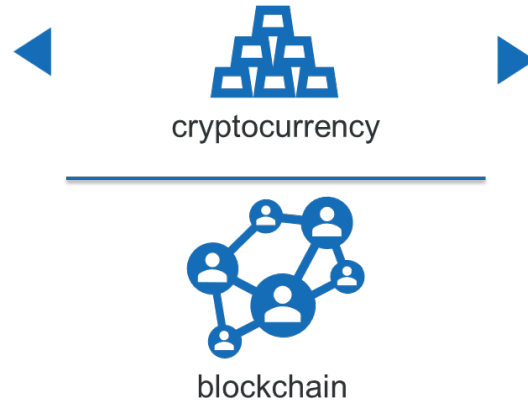




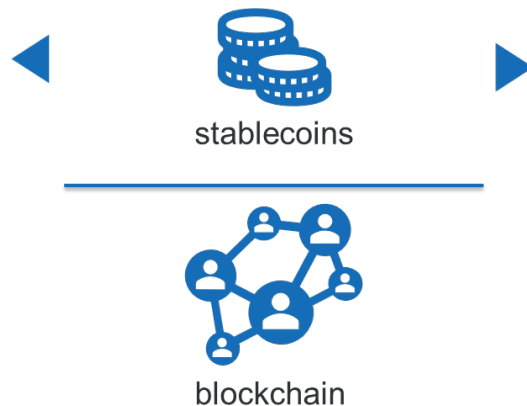
BLOCKCHAIN IS A TECHNOLOGY

Blockchain is the technology that supports cryptocurrencies as well as other types of information sharing.

BLOCKCHAIN IS A TECHNOLOGY



BLOCKCHAIN IS A TECHNOLOGY



BLOCKCHAIN IS A TECHNOLOGY



BLOCKCHAIN IS A TECHNOLOGY

The two largest blockchains available today:



(exclusively bitcoin cryptocurrency)



ETHEREUM

(Ethereum cryptocurrency & other technologies)



What is cryptocurrency?



What is cryptocurrency?

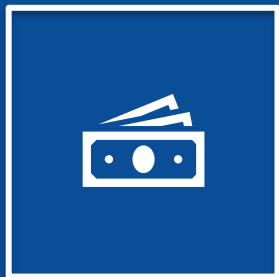




What is cryptocurrency?



What is cryptocurrency?



1. Money is a store of value
2. Money is a unit of account
3. Money is medium of exchange

What is cryptocurrency?

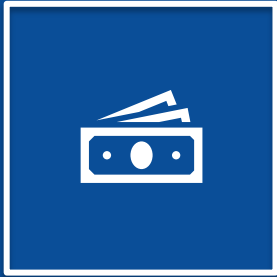


1. Money is a store of value
- ~~2. Money is a unit of account~~
3. Money is medium of exchange

What is cryptocurrency?



What is cryptocurrency?



What is cryptocurrency?



crypto = electronic metal



gold = metal

What is cryptocurrency?



crypto = electronic metal



gold = metal



What is cryptocurrency?

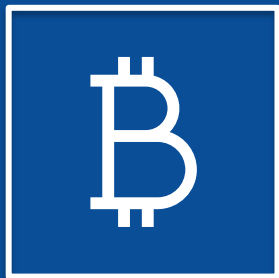


~~crypto = electronic metal~~



gold = metal

What is cryptocurrency?



~~crypto = electronic metal~~

gold = metal

"ether"

WHAT ABOUT OTHER CRYPTOs?

There are over 4,000 cryptocurrencies in existence:

 *bitcoin*



Polkadot.





WHAT ABOUT OTHER CRYPTOs?

46 million Americans
own bitcoin

Agenda

Blockchain



Cryptocurrencies



Bitcoin Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

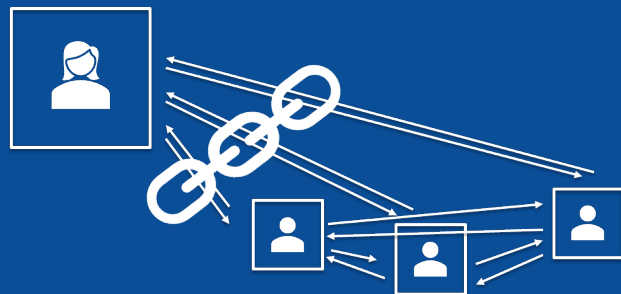
What is mining?

1 MAINTENANCE

2 GROWTH & CIRCULATION

What is mining?

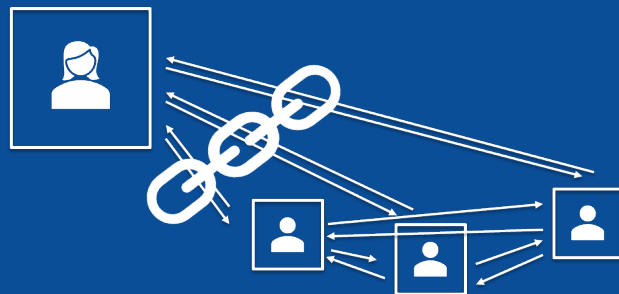
1 MAINTENANCE



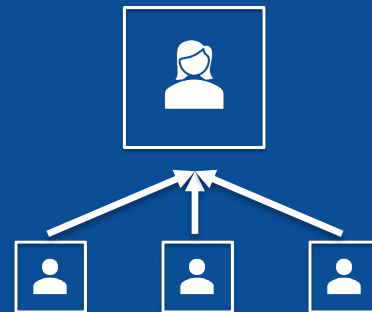
blockchain

What is mining?

1 MAINTENANCE



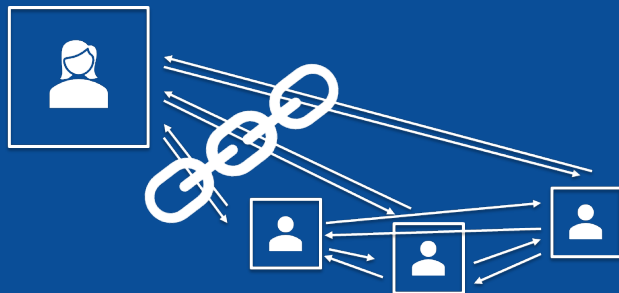
blockchain



traditional

What is mining?

1 MAINTENANCE



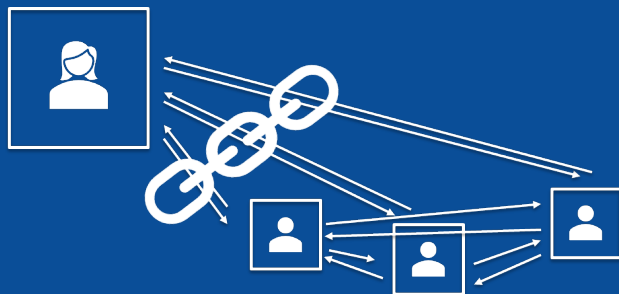
blockchain

Crypto Miners:

- Verify blocks of crypto payments
- Approve transactions to the public ledger
- Calculate mathematical proof-of-work

What is mining?

1 MAINTENANCE



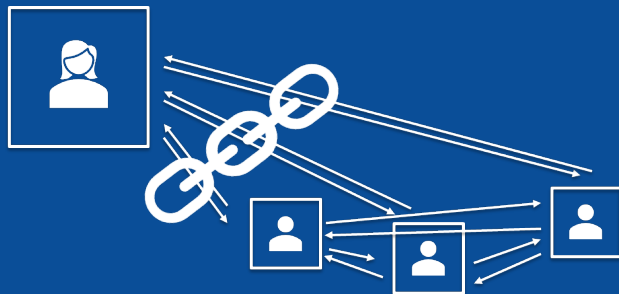
blockchain

Crypto Miners:

- Verify blocks of crypto payments
- Approve transactions to the public ledger
- Calculate mathematical proof-of-work

What is mining?

1 MAINTENANCE



blockchain

Crypto Miners:

- Verify blocks of crypto payments
- Approve transactions to the public ledger
- Calculate mathematical proof-of-work

The Big Read Bitcoin [+ Add to myFT](#)

**Bitcoin's growing energy problem:
'It's a dirty currency'**



What is mining?

② GROWTH & CIRCULATION

What is mining?

② GROWTH & CIRCULATION

$$\begin{aligned} & 6.25 \text{ bitcoins per block} \\ & = \\ & 6.25 \times \$36,000 \text{ (price as of 6/7/21)} = \$225,000 \end{aligned}$$

What is mining?

② GROWTH & CIRCULATION

6.25 bitcoins per block

=

$6.25 \times \$36,000$ (price as of 6/7/21) = \$225,000

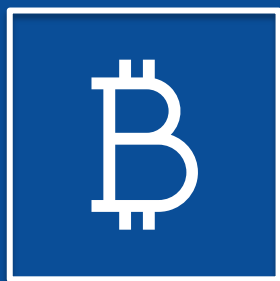
approximately 144 blocks are mined each day

=

$6.25 \times 144 \times \$36,000 = \$32,400,000$

What is mining?

② GROWTH & CIRCULATION

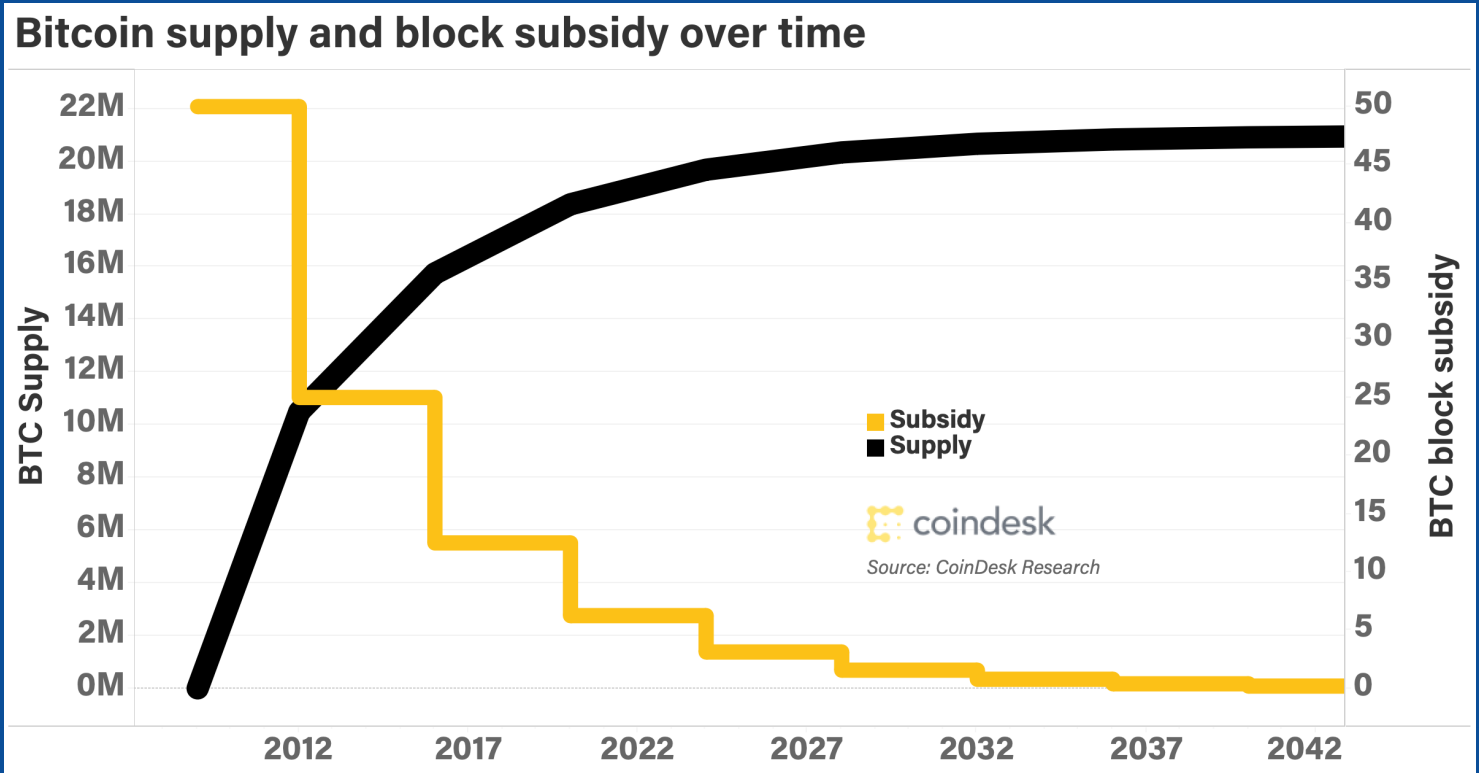


bitcoin



21
million

What is mining?





WHAT DOES IT COST TO MINE CRYPTO?

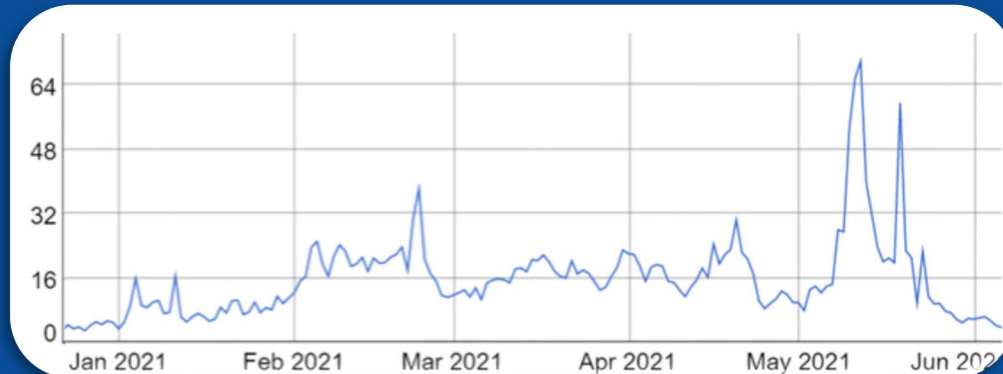
\$7,000+

What are gas prices?

Gas Price

Transaction fee paid to miners for processing transactions on the blockchain.

Avg. Transaction Fee ETH, USD



<https://bitinfocharts.com/comparison/ethereum-transactionfees.html#1y>

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

Agenda

Blockchain



Cryptocurrencies



Mining



“Gas Prices”



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

HOW DO YOU ACCESS CRYPTOCURRENCIES?



digital wallet



mobile bank account

HOW DO YOU ACCESS CRYPTOCURRENCIES?



digital wallet

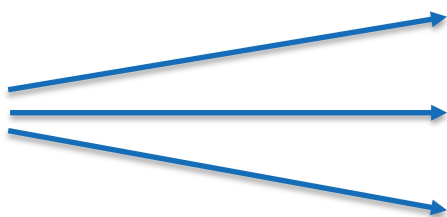


mobile bank account

HOW DO YOU ACCESS CRYPTOCURRENCIES?



digital wallet

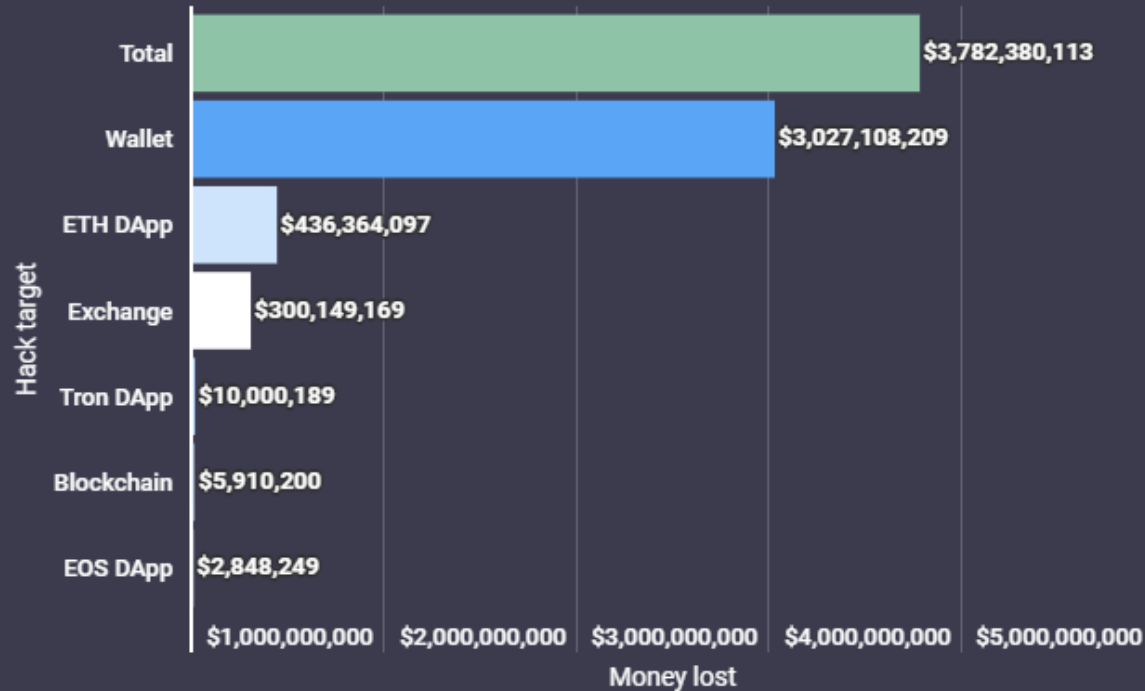


authentication & security

accessibility

hosting

Money lost to blockchain hackers by hack target (2020)




DIGITAL WALLETS: authentication & security

Business

Feds recover more than \$2 million in ransomware payments from Colonial Pipeline hackers

The seizure of cryptocurrency paid by Colonial Pipeline to a Russian hacker ring marks a major milestone for the Department of Justice

 Listen to article 5 min



DIGITAL WALLETS: accessibility

Lost Passwords Lock Millionaires Out of Their Bitcoin Fortunes

Bitcoin owners are getting rich because the cryptocurrency has soared. But what happens when you can't tap that wealth because you forgot the password to your digital wallet?



DIGITAL WALLETS: accessibility

What percentage of bitcoin is 'lost forever'?

20% = \$140b

DIGITAL WALLETS: hosting

hosted wallets: a digital wallet facilitated by an intermediary who transmits and stores crypto assets on behalf of their customers


unhosted wallets: usually a software application that allows individuals to manage their own crypto assets (like physical cash in a wallet)

DIGITAL WALLETS: hosting

hosted wallets: a digital wallet facilitated by an intermediary who transmits and stores crypto assets on behalf of their customers

unhosted wallets: usually a software application that allows individuals to manage their own crypto assets (like physical cash in a wallet)

Agenda

Blockchain			Smart Contracts
Cryptocurrencies			Tokenization (NFTs)
Mining			Altcoins & Forks
“Gas Prices”			Cryptocurrency Exchanges
Digital Wallets			Initial Coin Offerings

Agenda

Blockchain



Cryptocurrencies



Mining



Gas Prices



Digital Wallets



Smart Contracts



Tokenization (NFTs)



Altcoins & Forks



Cryptocurrency
Exchanges



Initial Coin Offerings

RECAP

- **Blockchain is the technology that supports cryptocurrency (and other applications)**
- **Cryptocurrencies are a means of digital exchange**
- **Mining allows for maintenance of the blockchain as well as growth and circulation of new coins**
- **Gas prices are transaction fees**
- **Digital wallets are the ‘on ramp’ to the crypto blockchain**



Questions

RESOURCES

- **News and Current Events**
 - [CoinDesk Newsletter](#)
 - [CoinTelegraph](#)
- **Education**
 - [99Bitcoins](#)
 - [Blockgeeks](#)

Connections In the Classroom: Rise of Cryptocurrency

Tamara Redic
Cottrell

Economic Education
Advisor



Connections In the Classroom: Embed

- **Draft an Argument:** Explore the relationship of risk and return as related to cryptocurrency.
 - Draft an argument for or against digital currency investments.
- **Make a Prediction:** Consider cryptocurrency as an investment strategy
 - Using current news reports and/or events to make a prediction about a cryptocurrency.



Connections In the Classroom: Extend

Extend –

Building Wealth Lesson 7: Risk & Return

- [Building Wealth Lesson 7-Teacher Procedures](#)
- [Building Wealth Lesson 7-Presentation](#)

Risk return relationship

