

Cryptocurrency - Bitcoin



Teacher Instructions

Option 1: Workbook

- The workbook contains a 1-page version of the cryptocurrency notes given below, and a summarising/discussion task.
- Intended to be accessible to the majority of students

Option 2: This resource

- Stretch/challenge resource: for higher attaining pupils
- Students could:
 - Read and summarise all text in the document
 - Be split into groups/pairs, and be assigned a question number or page to summarise
 - Students can then prepare to share their research with the class, to ensure all content is heard by the group



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1. Summarise your reading into 30-50 words.
2. Select two points to create a whole class bitcoin fact sheet.

Extension: Using two different colours, highlight the positives and negatives of using cryptocurrencies

1. What is bitcoin?

Cryptocurrencies are digital currencies. There are tens of thousands of different cryptocurrencies. Bitcoin is one of the most well-known.

Bitcoin was first published as an idea on an electronic mailing list for computer scientists who studied secure communications, or cryptographers, in 2008. The author has the mysterious pseudonym Satoshi Nakamoto, but no individual or group of people has so far been decisively identified as Satoshi.

Bitcoin does not have a physical form. Instead, units of digital currency are traded over a computer network that has some unique properties:

- It does not have any central points of control – there are no banks
- It does not have any central points of transaction storage – there is no central database that holds a record of all the transactions made

Instead, it operates over a global network with thousands upon thousands of nodes – a machine within a network such as a computer or other device – that together process and store transactions. Having thousands of nodes makes it difficult to have a common record of all the transactions, but a technology known as blockchain makes this possible.

Blockchain is a shared transaction record that prevents anyone from “double spending” bitcoins and makes it extremely hard for anyone to alter historical transactions. It is very hard to shut down or interfere with.

My summary

Sources

- <https://www.bbc.co.uk/bitesize/articles/zfsvy9q> - This article was last updated in July 2020
- Contributor: Dr William John Knottenbelt, director of the Imperial College Centre for Cryptocurrency Research and Engineering
- <https://www.bbc.co.uk/newsround/25622442> 5 Feb 2021



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2. How does bitcoin work?

Bitcoin is used and actively traded on cryptocurrency exchanges, which allow users to swap “ordinary” money such as pounds and dollars for bitcoins.

To use bitcoin, the first step is to create a wallet, which can be online, a mobile app, or for higher security can be a hardware device. This protects the secret codes that are used to authorise the movement of bitcoins under your control.

Your wallet will control various “addresses”, which can be used to receive bitcoins, similar to bank account numbers. It will also control the secret password that is needed to authorise the sending of bitcoins, technically known as a private key. If you lose your private key, or it is stolen, you effectively lose control of your bitcoins, a bit like if someone found out your debit card PIN number. However, with crypto (and unlike your bank) there is usually no way to get your bitcoin back.

In order for the bitcoin system to work, people can use computers to process transactions for everybody. The computers are made to work out incredibly difficult sums to complete a transaction. If successful, they are rewarded with bitcoin for the owner to keep.

People set up powerful computers just to try and get bitcoins. This is called mining. As it is very difficult to be the first computer to complete the sum, if you started mining now it could be years before you got a single bitcoin.

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3. Why would someone want bitcoin instead of “normal” money?

- The “normal” money we use today is actually rather unusual in the history of money, in the sense that it is no longer precious itself, unlike gold coins for example.
- There are lots of things other than money that we consider valuable, such as gold and diamonds. The Aztecs used cocoa beans as money.
- Bitcoins are valuable because people are willing to exchange them for real goods and services, and even cash.
- If you read the words on a £10 note, it says (in very small letters): *"I promise to pay the bearer on demand the sum of ten pounds."*
- The value of official currencies like the pound is based on a promise from the government, which means it is possible to simply create more money by issuing more IOUs.
- As more and more money is created, it lowers the value of the existing money in circulation. People don't necessarily notice this because the number of pounds in their wallet remains the same. However, they do notice that their weekly shop, eating out and watching movies costs more and more money.

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3. Why would someone want bitcoin instead of “normal” money? (Continued)

- Bitcoin is different.
- The supply of bitcoins is carefully controlled and limited and no one can create or issue more bitcoins at will. There will never be more than 21 million bitcoins and each bitcoin is itself divisible into 100 million units, known as satoshis. It is very difficult to copy bitcoins, make fake ones or spend ones you do not own.
- Some people like the fact that bitcoin is not controlled by the government or banks.
- People can also spend their bitcoins relatively anonymously. Although all transactions are recorded, it's hard for people to find out which account number is yours.
- But it is possible to lose your bitcoin wallet or delete your bitcoins and lose them forever. There have also been thefts from websites that let you store your bitcoins remotely.

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4. Can bitcoin make you a millionaire?

- Bitcoin is a high-risk, speculative and volatile asset. Like many high-risk investments, it goes through boom and bust cycles and, depending on when you buy it, it can make you either very wealthy or it can lose you a lot of money.
- In the early days, bitcoin traded for \$1 each. The price peaked at around \$20,000 (£16,345) in 2017 before plunging to around \$3,000 (£2,452) then settling around \$8,000 (£6,539). In 2021, the value of the coin reached a record high of \$69,000 (£58,204).
- Like a share, a painting or a house, bitcoins are worth nothing more or less than what other people are prepared to pay for them.

5. Can we trust cryptocurrencies?

- Like any fast-developing space with new technologies, there are higher quality cryptocurrencies and lower quality ones.
- A lot of money is spent on cryptocurrency marketing, and there's tons of conflicting information on the internet and social media. So it can be hard to tell which cryptocurrencies might bring smart ideas and have long-term value, and which cryptocurrencies are just copying others or are outright scams.
- There are many examples of people pretending to sell a new cryptocurrency but actually just stealing the money, such as OneCoin.

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6. Could cryptocurrencies become more popular than physical currency in the future?

- This is theoretically possible, but it will likely take many years and will require many technical, economic, regulatory and legal issues before it becomes a reality.
- For example, the Bitcoin blockchain can currently support much fewer transactions than traditional centralised payment networks such as Visa or Mastercard.
- One newer class of cryptocurrency that is proving to be very popular is so-called “stablecoins”.
- These are cryptocurrencies whose value is linked to “normal” currencies such as the US dollar, euro and British pound. Although still very unlikely, these “stablecoins” stand a better chance at becoming more popular than physical currency compared to older cryptocurrencies.

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