Outline:

Use selected on-line articles to explore current issues related to crypto currencies such as BitCoin. A focus for learning is: the underlying technologies, impacts on society, and impacts on the environment.

Objectives:

* C1.4 describe how electronic access to information influences our everyday lives.
* C2.1 describe the negative effects of computers and computer use on the environment.
* C3.1 describe legal and ethical issues related to the use of computers.

**BitCoin & Crypto currencies**

Use the following resource to answer the questions below:

* <https://www.investopedia.com/tech/most-important-cryptocurrencies-other-than-bitcoin/>

1. What is a “crypto currency” and how are “crypto currencies” different from traditional currencies (money)?

- Crypto-Currency is the future of money

- It is not a trend that is only for limited on-line applications

1. BitCoin is the leading crypto currency that most people know. What are some other crypto currencies and what are their unique features?

- Ethereal – Safety and security

- Ripple – Ease of use

- TopCoin - In game currency

**Block Chains Explained**

Use the following resource to answer the questions below:

* <https://www.investopedia.com/terms/b/blockchain.asp>

1. “Block chains” are the basic technology behind crypto currencies and other emerging technologies. Explain block chains work with respect to:
   1. What they store

- Blocks store information about transactions like the date, time, and dollar amount of your most recent purchase from Amazon.

* 1. How they work

- Blocks store information about who is participating in transactions. A block for your splurge purchase from Amazon would record your name along with Amazon.com, Inc.

* 1. How they are secure and private

- Anyone can view the contents of the blockchain, but users can also opt to connect their computers to the blockchain network.

- In doing so, their computer receives a copy of the blockchain that is updated automatically whenever a new block is added, sort of like a Facebook News Feed that gives a live update whenever a new status is posted.

* 1. How they use public and private encryption keys

- Blockchain technology accounts for the issues of security and trust in several ways. First, new blocks are always stored linearly and chronologically. That is, they are always added to the “end” of the blockchain.

1. How does BitCoin use block chains?

- If you take a look at Bitcoin’s blockchain, you’ll see that each block has a position on the chain, called a “height.” As of February 2019, the block’s height had topped 562,000.

1. What are some advantages and disadvantages of block chains?

|  |  |
| --- | --- |
| Pros | Cons |
| * - Improved accuracy by removing human involvement in verification * - Cost reductions by eliminating third-party verification * - Decentralization makes it harder to tamper with   - Transactions are secure, private and efficient   * - Transparent technology | * - Significant technology cost associated with mining bitcoin * - Low transactions per second * - History of use in illicit activities * - Susceptibility to being hacked |

**Crypto-Games & Other Applications**

Use the following resource to answer the questions below:

* <https://egamers.io/beginners-guide-to-crypto-games/>

1. What are some interesting Crypto Games (i.e. games that use Block Chain technology) available for Android or iPhone?

- Dissolution

**- Forgotten Artifacts**

- Space Misfits

- War of Crypto

1. How are Crypto Games different from conventional games?

- Crypto games has a currency called “TopCoin” which can be made by playing more and more of the game. You can use topcoin for in game purchases

1. What are some other real-world applications of block chains besides games and crypto currencies?

- Banking

- Healthcare

- Real Estate

- Government

**BitCoin & Society**

Read the following resources before answering the questions below:

* <https://www.cnet.com/how-to/what-is-bitcoin/>
* <https://www.independent.co.uk/life-style/gadgets-and-tech/news/bitcoin-price-fall-criminals-blockchain-anonymous-cryptocurrency-zcash-monero-dash-a8174716.html>
* <https://coincenter.org/link/why-ransomware-criminals-use-bitcoin-and-why-that-could-be-their-undoing>

1. How is BitCoin created and what is "BitCoin Mining"?

- The Bitcoin protocol is designed in such a way that new bitcoins are created at a fixed rate. Bitcoin miners are processing transactions and securing the network using specialized hardware and are collecting new bitcoins in exchange.

1. Can you buy BitCoin and what does it cost?

- You can buy or invest in bitcoin and 1 piece currently costs $10,871

1. What can you use BitCoin for?

- You can use bitcoin for many things such as: Buying a house, Buying in game currency, buying online products, for air travel, and pizza delivery etc.

1. What are the risks of using BitCoin?

- Bitcoin exchanges are entirely digital and, as with any virtual system, are at risk from hackers, malware and operational glitches. If a thief gains access to a Bitcoin owner's computer hard drive and steals his private encryption key, he could transfer the stolen Bitcoins to another account.

1. How much of BitCoin business is related to criminal activity?

- 44% of bitcoin transactions has been used for illegal actives as people use then for scams, drug deals and a general payment method.

1. What are some of the reasons why criminals use BitCoin?

- It allows people to conceal their identity, it allows criminals to store their money safely, it will not raise subsection.

1. What are some of the disadvantages of BitCoin when used for criminal activity?

- Every transaction is stored; it can be tracked back the point of origin or location of the device.

**BitCoin & The Environment**

Read the following resources before answering the questions below:

* <https://www.cbc.ca/news/business/bitcoin-electricity-1.4668768>
* <https://www.cbc.ca/news/business/hut8-medicine-hat-bitcoin-mining-1.4834027>

1. What is a BitCoin “miner” and why are people concerned about BitCoin mining?

- BitCoin mining is the process of adding transaction records to BitCoin’s public ledger of past transactions or blockchain. People are concerned about it use hundreds of computers that take up lots of energy which harms the environment.

1. Why does BitCoin mining use so much energy?

- Because it uses hundreds of computers which take up a large amount of energy.

1. Why has Hut-8 decided to locate its facility in Alberta when its head office is in Toronto? What does the city of Medicine Hat provide that is required for mining BitCoin?

- They choose to go to this place because they needed gas-fired generation, and Alberta could easily provide them with that.

1. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?

- Medicine hat expects to see a boost in their economic status through supplying Hut-8 with their desired resources.

1. What concern does the city of Medicine Hat have about from this Bitcoin facility?

- Medicine hat worries about the environmental effects, the safety of the people, and the likelihood of a power outage.

1. What concern do environmentalists have about the Medicine Hat facility and about BitCion mining in general? E.g. how does BitCoin mining harm the environment?

- Bitcoin mining could hurt the environment because they need a lot of electricity and this facility is using a lot of fossil fuels for their computer’s large need of energy.

1. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.

- This company would not be able to host a facility in Brampton due to its large population. This will lead to the city being overwhelmed as the city is demanding a large amount of energy, the taxes will sky rocket, the city would need more suppliers, and there would be a higher chance of a blackout.