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)?

A secure currency that is held online and can be easily transacted to anyone privately and almost entirely anonymously

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

Ethereum (ETH), Litecoin (LTC) Zcash (ZEC)

Litecoin: Has a faster block generation rate and offers a faster transaction, it has also begun to become a form of crypto currency that is becoming acceptable.

Ethereum: Ethereum can be used to develop and create applications, meaning that most developers look for ether in order to gain an advantage in ethereum so they may work around the cryptocurrency.

Zcash: Zcash is an open source cryptocurrency, Zcash offers more privacy than Bitcoin or any other cryptocurrency due to zcash only watching what happens during a transfer and editing of a block, plus they have shielded transactions which are encrypted transfers.

**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 transaction information, such as the date, time and amount of money transferred, with most showing who is doing what.

* 1. How they work

They verify that the transaction has been completed correctly, instead of having a human monitor whether the purchase is legitimate or not, it’s a huge network of computer which verify if the purchase was proper or not, if it was proper, all data of the purchase is put into a block and then stored, once there is a hash given, the information will be sent over to the block chain

* 1. How they are secure and private

In a blockchain, information is stored on all computers, making it physically impossible for a hacker to edit it, since it would require the hacker to manipulate all computers within the network, but if a hacker wanted to try and fake a hash key, it would be extremely difficult, as hash keys are created via the use of mathematics in order to generate, math that only a computer would be able to do as quickly or precise

* 1. How do they use public and private encryption keys

Public keys allow people to insert information but that information cannot be taken out or edited unless someone working at the cryptocurrency company

1. How does BitCoin use block chains?

In order to store transactions, bitcoin utilises block chains to hold the information in a block.

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

Pros

* Very private and secure, making it almost impossible to hack

Cons

* Cannot be accessed by anyone except for higher members of bitcoin, leading to more protection, but much harder to access

**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?

There are apps such as reward apps which give you crypto currency for doing activities and games which use your device for crypto currency mining

* MYCRYPTOHEROES
* THEMULTIVERSE
* ETHERMON
* GODSUNCHAINED

1. How are Crypto Games different from conventional games?

They use your device to mine crypto currency instead of ads

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

Security in banks and other currency holder locations

**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"?  
    BitCoin is created via the use of technology, computers and other devices are used in order to mine cache on the devices to create BitCoin
2. Can you buy BitCoin and what does it cost?  
    You must create a BitCoin account and add your credit card in order to purchase BitCoin and use it for transfers, a BitCoin can range in price, similarly to stocks
3. What can you use BitCoin for?  
    You may use BitCoin in order to make secure transactions with others
4. What are the risks of using BitCoin?  
    Even though it is thought that transactions are private, they are actually tracked and kept safe within a block, meaning that no transaction is truly private
5. How much of BitCoin business is related to criminal activity?  
    There is a sizeable amount of people who utilise BitCoin in order to scam or perform illegal activities, and since BitCoin is much harder to track, it makes much easier to avoid authorities

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

Much more private than banks and other accounts, harder to track and much more secure leading to less scamming and refunds

1. What are some of the disadvantages of BitCoin when used for criminal activity?  
    Since all transactions are held in blocks, it makes it so transactions are always held and can be used against the criminals in a case of needing proof for officers and law officials

**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?
   * A BitCoin miner uses cache on your Device in order to create BitCoin of which you may recieve
2. Why does BitCoin mining use so much energy?
3. 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?
4. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?
5. What concern does the city of Medicine Hat have about from this Bitcoin facility?
6. 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?
7. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.