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 crypto currency is virtual currency which takes the form of coins or tokens. It differs from traditional currencies the way that they’re free from government control.**

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

**Another crypto currency is Litecoin (LTC). A unique feature about it is that Litecoin has faster block generation so it has a faster transaction confirmation. The worth of one Litecoin token is considerably less than one BitCoin token.**

**The next crypto currency is Ethereum. Ethereum’s tokens are worth $118.71 per token. Ethereum is split into two forms, Ethereum (ETH) and Ethereum Classic (ETC). Ethereum’s (ETH) tokens are worth $118.71 per token.**

**Finally, there’s Zcash (ZEC). Zcash claims to have more privacy and more security than BitCoin as all of the transactions are recorded and published as they have to be, but the details like sender, recipient, and amount still remain private.**

**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
   2. How they work
   3. How they are secure and private
   4. How they use public and private encryption keys

**What block chains store are information about transactions like the date, amount of money, and time. Instead of using the name given, a block chain would record the purchaser with a unique digital signature.**

1. How does BitCoin use block chains?

**BitCoin uses block chains to store information about the buyer and their purchase but instead of using a name it uses a secure digital signature. Each block stores one transactions information with it being a very long chain of information.**

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

**Some advantages of block chains are that: they’re private and secure, the technology is transparent, and the decentralization makes it way more difficult to tamper with.**

**Some disadvantages of block chains are: Low transactions per second, they’re susceptible to getting hacked, and the illegal activity associated with it.**

**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?

**Some crypto games available for Android or iPhone are: MYCRYTOHEROES, THE MULTIVERSE, ETHEREMON, and GODS UNCHAINED.**

1. How are Crypto Games different from conventional games?

**Crypto games are different from conventional games as conventional games just give you in-game rewards but crypto games**

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

**Some real world applications of block chains are: personal identification, birth certificates,**

**wedding certificates, death certificates, and smart appliances.**

**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 by BitCoin mining. BitCoin mining is when a computer does very complex math equations that can be solved by high-end computers on the BitCoin market. These equations are so complex, they cannot be done by hand.**

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

**Yes, you can buy BitCoin. It costs approx. $9710 CAD.**

1. What can you use BitCoin for?

**You can use BitCoin to make transactions, mostly online transactions. Although someone has bought a house purely using BitCoin.**

1. What are the risks of using BitCoin?

**One risk is hacking which can be very serious as stolen BitCoin cannot be recovered. Another risk is being profiled by the government as BitCoin tends to be associated with crime.**

1. How much of BitCoin business is related to criminal activity?  
    **Only around ¼ of BitCoin users are involved in illegal activity.**
2. What are some of the reasons why criminals use BitCoin?

**One reason is that BitCoin is thought of as untraceable. Another reason is that BitCoin is more secure as the government doesn’t control the currency so they cannot interfere with the money. The final reason is that BitCoin transactions are easier to manage than PayPal or wire transfers.**

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

**Some disadvantages of using BitCoin for criminal activity are: in the US, every major BitCoin transaction is monitored by the FINCEN. The block chains can also be tracked.**

**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 is someone who uses BitCoin mining software to get/create BitCoin without having to purchase it. The concern is that BitCoin mining takes up energy.**

1. Why does BitCoin mining use so much energy?

**BitCoin uses so much energy because it takes a lot of hardware to mine BitCoin, and all that hardware is consuming a lot of power.**

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 locate their facility in Alberta because they have a lot more access to electricity as Toronto is very populous so they will not neither space or electricity. What the city of Medicine Hat has is copious amounts of electricity and the city has struck a deal with Hut-8.**

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

**The benefits that the city expect to see are the economic benefits, as they will see a large financial boost.**

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

**The concerns that the city have are the emissions that the facility is creating, and what will happen in the event of a blackout.**

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?

**Concerns that environmentalists have about the facility are that the facility are causing a lot of emissions, and it consumes a lot of electricity.**

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

**I would not be in favour of a facility in Brampton. That is because Brampton does not have the expendable electricity or space. As so many people are moving into Brampton, most space is being used for housing. There is simply not enough space in the city. As a result of the huge population, a lot of electricity gets used in Brampton. With all the electricity usage already, a facility would consume much more, which would not be good. Although there would be economic growth, the negatives outweigh the positive.**