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)?

Cryptocurrency is virtual money which is in the form of coins. Cryptocurrency is different from regular currencies because it is digital and not physical, and it is mostly anonymous. They are also free from governmental control.

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

One other type of cryptocurrency is called litecoin. Litecoin has a faster block generation rate than bitcoin which makes transactions made with litecoin faster. Another cryptocurrency is Etherium. This cryptocurrency allows smart contracts and distributed applications to be built and run without control from a third party. Zcash is another type of cryptocurrency. Zcash is more secure than bitcoin since the sender, recipient, and amount of money sent is kept private. Dash is another type of cryptocurrency where the transactions are private and are almost untraceable. Also, there is a cryptocurrency called ripple. Ripple allows money to be sent internationally in real time and it doesn’t require mining like most other cryptocurrencies do. Monero is a cryptocurrency that is very private and secure which is why it is widely used in criminal operations. Bitcoin cash is a split cryptocurrency of bitcoin and it increases the size of the blocks from 1mb to 8mb making the transactions faster.

**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

Block chains store information about transactions like amount, time, and date.

* 1. How they work

Block chains string many blocks together which have transactions in them. For a new block to be made, a transaction must be made.

* 1. How they are secure and private

Because if a hacker wanted to change something in a block chain, they would have to change every single copy of the block chain since there are thousands or in some cases millions of copies of a block chain.

* 1. How they use public and private encryption keys

While anyone can add to the block chain by making a transaction, only certain people can look at it.

1. How does BitCoin use block chains?

Bitcoin uses block chains to keep track of transactions and money sent to other people.

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

Advantages:

* Secure
* Faster and cost effective
* Transparent
* It is decentralized

Disadvantages:

* Uses high level of energy
* Uses a lot of computing power
* Bad for the environment
* Uses a lot of electricity and cooling power

**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?
2. How are Crypto Games different from conventional games?
3. What are some other real-world applications of block chains besides games and crypto currencies?

**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 through bitcoin mining. Bitcoin mining is when the computer solves complex mathematical equations using computer software.

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

You can buy bitcoin by downloading a software that allows you to buy it. 1 bitcoin costs 7500 USD but the price is always changing.

1. What can you use BitCoin for?

You can buy things online from places that accept bitcoin and you can also book hotels, bars, and restaurants.

1. What are the risks of using BitCoin?

* It is new technology
* The price of a bitcoin is always changing
* Cyber theft
* Fraud
* No regulation
* Limited use

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

Almost half of the transactions made using bitcoin are used for criminal activity

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

Criminals use bitcoin because it is private, secure, and there is no regulation for it.

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

Disadvantages of using bitcoin for criminal activity is the fluctuating cost since the price is always changing and it is a new technology.

**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 miners are people who mine the bitcoins, Bitcoin mining is concerning because it uses a lot of electricity and is bad for the environment.

1. Why does BitCoin mining use so much energy?

Bitcoin uses a lot of energy because it requires a lot of computers to solve complex math equation which uses up a lot of electricity.

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?

The facility is located in Alberta because the city of medicine hat has a new natural gas fired power plant and four wind turbines are a short distance away which allows the facility to use a lot of energy.

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

The city will see economic benefits and a financial boost from the facility.

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

The concerns they have are how bad it is for the environment and the amount of energy the facility uses since it can cause blackouts for the residents of medicine hat.

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?

Environmentalists are concerned about the environmental impact of bitcoin mining. Bitcoin harms the environment because it uses a lot of energy and electricity to mine the bitcoins and that is bad for the environment.

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

They would probably not be in favor of it because it would use too much energy and we don’t have as much renewable energy to offer them which means that if they did build the facility here, the residents of Brampton would experience blackouts and other problems.