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.

**Level 1: Cryptocurrencies & Blockchains**

Read the following resources before answering the questions below:

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

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

· <https://www.cryptoandgamers.com/>

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

A cryptocurrency is a virtual or digital currency that uses encryption and cryptography for security. Its different from traditional money, because it is not controlled by governments, and is immune to all changes that the governments want the currency to change into.

2. BitCoin is the leading cryptocurrency that most people know. What are some other cryptocurrencies and what are their unique features?

There are alot of other cryptocurrencies out there, and some examples would be litecoin, ethereum, zcash, dash, ripple, monero, etc… Litecoin has a faster block generation rate, and has faster transaction confirmation than Bitcoin. Ethereum, developers can generate ethereum without third party softwares that could slow down your current pc.

3. “Blockchains” are the basic technology behind cryptocurrencies and other emerging technologies. Explain blockchains work with respect to:

a. What they store

They store transaction information on purchases online from different websites.

b. How they work

They store data about the transaction, and hashes on each transaction so they can tell them apart from each other.

c. How they are secure and private

Blockchains are secure and private because they contain hashes, and the hashes are generated by a math function. They are secure, because blocks next to them also contain that block’s hash, which is hard to change. If contents inside the block change, then the hash also changes.

d. How they use public and private encryption keys

The public encryption key would be used to enter data into the block. The private encryption key is used to view the data inside the block.

4. How does BitCoin use blockchains?

Blocks are used to store data about a transaction, and a hash is generated for the specific block when it’s finished with receiving the data that it has to store.

5. What are some other real-world applications of blockchains?

Block chains were invented a long time ago when two people wanted a system for transactions to be defined, and not messed up by hackers or other people. Bitcoin was invented in 2009 where blockchains has a real world implementation of cryptocurrency.

6. What are some advantages and disadvantages of blockchains?

Some advantages would be paying for items anonymously, better security and fewer errors processing the transaction. Some disadvantages would be the cost to mine a bitcoin, inefficient mining and transactions per second limits, not full anonymity,

7. Blockchain based games are the latest development in the gaming industry. Research the topic “Crypto Games” (google) to answer the following questions.

a. What are some interesting Crypto Games available for Android or iPhone?

There’s a variety of games, ranging from Blockchain Cuties, to Axie Infinity, and much more available.

b. How are they different from conventional games?

They are games that you can play to earn actual bitcoins, or any other cryptocurrency that can be exchanged for bitcoin. These games are meant for your devices to generate hashes as you play the game, earning you money as you play, but also earning the game money as you don’t get all the money that you mined while playing the game.

**Level 2: Bitcoin & The Economy**

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. Who created BitCoin and who owns BitCoin now?

It was created in 2009 by Satoshi Nakamoto. He turned the ownership onto the bitcoin community, and then vanished.

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

Bitcoin is created by a group of people or one person, and it started out as an open source software in 2009. Bitcoin mining is when a transaction gets recorded inside a block.those blocks are turned into a hash by the miners, and then the first one to complete it successfully gets paid 12.5 bitcoins.

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

Yes, you can buy bitcoin, and you buy it with non cryptocurrency money. You convert it into bitcoin with different coinbases, whhich are websites that belong to different companies, and it costs 5043.17 canadian dollars per bitcoin at this moment i’m typing this answer.

4. Why would you want to buy BitCoin and what can you use it for?

You would want to buy bitcoin if you want to buy something while staying anonymous, and have the privacy of buying something without getting known. You could use it for buying mystery boxes, because it’s against the terms of service of most sites to sell unknown product details. You could also use it because it has faster speeds and is more secure than normal currencies.

5. What are the risks of using BitCoin?

Some risks that are potentially severe when they can harm your revenue and life savings. One risk could be losing all your bitcoin investments due to fluctuating markets and values of bitcoin. Bitcoin could lose its value and the investors could be in trouble. There are no authorities running bitcoin, and is heavily relied on technology to run bitcoin, so if the technology fails, then bitcoin goes down.

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

About 95% of all laundered coins are linked to dark-web and criminal activity. Bitcoin is really hard to trace, and so it’s a good choice for criminals who don’t want to get caught buying illegal products or services off of the internet.

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

They use bitcoin because it is basically untraceable and criminals like using it to hide their identity. Purchasing using bitcoin can make you stay anonymous while performing criminal activities.

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

Some disadvantages of using bitcoin for criminal activity, is the fact that bitcoin isn’t always fully anonymous. When you transfer funds from bitcoin to an regulated currency like US dollar, most sites and places require that you create an account and reveal your identity when criminals would rather stay anonymous.

9. Many people dislike BitCoin because they think it is only good for criminal activity.

Is this true? Write a supported opinion paragraph (SOP) to explain your position.

Guidelines for writing a supported opinion paragraph (SOP)<http://schools.peelschools.org/sec/fletchersmeadow/studentlife/OSSLTprep/Documents/Sample_%20Writing%20a%20Supported%20opinion%20paragraph.pdf>

This is not true because Bitcoin has many other uses. Bitcoin is generally used if people want to remain anonymous from online buyers and sites, if they would like the transaction to complete and process faster. Some people don’t even use bitcoin because they want to. They just go on to mine bitcoin, and convert the bitcoin to dollars that they can actually use. Bitcoin is faster than regular currencies, and they can transfer and process the transaction quickly, without much delay in the service. Bitcoin also has the advantage of remaining anonymous while making all of those transactions. Bitcoin has the use of jobs. Jobs can be made with bitcoin, and those jobs consist of mining bitcoin in order to make a living and have a better alternative than actual jobs. They use multiple rigs of systems, and over time to gain the money that they lost building the system. This is why Bitcoin is useful for criminal activity, but not not always good for criminal activity as stated above.

**Level 3: 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 a person that uses GPU processing power to generate hashes to earn bitcoin, a currency that can be used anonymously.

2. Why does BitCoin mining use so much energy?

Bitcoin mining uses so much energy because the graphics card has to work hard, in order to compute the algorithm for the hashes that are formed when mining for cryptocurrency.

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?

Medicine hat offers stable utility rates and fees for the property and electricity that Hut 8 needs to build their mining rigs to mine the large amounts of bitcoin.

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

The city of Medicine hat expects to see electricity bills rise, and the need for electricity to go up in Hut 8’s area as they continue to consume more energy. With Hut 8’s expanding facility and growth, they will continue to use more and more power every day.

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

The only concern that they should have is the concern that Hut 8 would expand their facility far more than they expected. This would result in the electricity suppliers not being able to keep up, as well as how much electricity can be transported before they would have to add more power lines to power the whole 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?

They would have concern over the amount of electricity that is being used to power the facilities. Since electricity generated from renewable sources takes a long time, companies often resort to using non renewable sources to generate the energy they need. This is a concern, because if companies continue to generate electricity using non renewable sources, then it would damage the environment, especially with the amount of electricity that needs to be generated.

7. If Hut-8 wanted to build a facility in Brampton, would you be in favor of this proposal? Write a SOP to justify your position.

This would be a bad idea, because Toronto is packed with urban buildings and homes. This would be a waste of land, because the mining facility doesn’t need to be around anything. So having it in toronto would just mean a useless building. It wouldn’t benefit the people around it, and toronto citizens would oppose it for something better that could be built. The facilities could be built anywhere and can be in any location. This means that the most optimal place for the facility would be out in the middle of nowhere. This would ensure that the placement of the hugr property would not interfere with any surrounding areas. Toronto also has to power alot of buildings. This means that the power that the facility needs, would go over the limit that Toronto could power, and that would be bad for the surrounding buildings that aren’t getting enough power that they need. This is why building a facility like Hut 8 in Toronto would be a bad decision.

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Resources:

· Guidelines for writing a supported opinion paragraph (SOP)

<http://schools.peelschools.org/sec/fletchersmeadow/studentlife/OSSLTprep/Documents/Sample_%20Writing%20a%20Supported%20opinion%20paragraph.pdf>