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 a currency that is mostly intangible and uses blockchain technology to function. It is decentralized.

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

There are many crypto currencies available. There is Litecoin which has a faster transaction confirmation. There is Ethereum which can have apps built for it and is a secure coin against fraud and interference. There is also ZCash which makes the transactions on it more secure.

**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:

a.       What they store

The date, time and dollar amount that a transaction has. The people that are using the service are recorded using a digital signature. It also records hashes for each block.

b.       How they work

First someone buys or sells something. When a block stores new data from this, it is added to the blockchain, Your purchase’s details are recorded and checked over. Once your purchase is verified it gets a hash and is added to the block chain

c.       How they are secure and private

Anyone can see the contents of a blockchain but unless someone has access to every computer on the network they can’t change the contents of the blockchain. Contents cannot be deleted and would take an enormous amount of computing power to change since if you changed a block it would get a new hash number

d.       How they use public and private encryption keys

 Public encryption keys are used to publicly record info and are used to send money to accounts as wallet codes. Private encryption keys are the access codes to the cryptocurrency in your wallet in the case of cryptocurrency.

2.       How does BitCoin use block chains?

Bitcoin uses block chains by storing transaction information on a block chain so that it cannot be changed (Unless 51% attack used).

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

 Individuals cannot edit blockchains but blockchains can be edited by people who have over 50% of the network who could change transactions due to having a majority on the network. This mostly affects small cryptocurrencies that are just starting out and can allow people to make “double purchases” where they spend cryptocurrencies twice

**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?

Two interesting crypto games are My CryptoHeros and The Multiverse.

2.       How are Crypto Games different from conventional games?

 Crypto games are different than conventional games because you earn cryptocurrency while playing and sometimes are based on blockchain technology.

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

Blockchains can be used in anything that needs continuity of data over a large network. This could be used for the original purpose of keeping documents the same or, making sure that security code remains the same so that a network is not broken into.

**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 done by processing other users’ transactions and adding them to the blockchain in exchange for a reward in bitcoin.

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

You can exchange money for bitcoin. It currently costs $10,940.78 Canadian dollars per bitcoin.

3.       What can you use BitCoin for?

You can use BitCoin for many different things in many different places. In some places you can use it for almost any everyday interaction. BitCoin has ben used to sell houses and even buy food. BitCoin can be used for anything that has a business owner that will accept it.

4.       What are the risks of using BitCoin?

Bitcoin is very volatile and its price changes all the time. BitCoin can also be stolen from third parties and refunds are usually unavailable.

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

Almost half of all bitcoin activity is related to criminal activity.

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

Criminals use BitCoin because it conceals their identities and leads to a code and not a name. It is also very efficient to implement into ransomware code.

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

 BitCoin transactions are open to the public and anyone can see them. Transactions for certain things can be tracked until the bitcoin is exchanged out for non-crypto currencies at which point the person who exchanges it out can 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 a computer that is used to mine bitcoin. People are concerned about BitCoin mining because it takes up huge amounts of electricity for no physical gain.

2.   Why does BitCoin mining use so much energy?

BitCoin mining uses a lot of energy because multiple users are all competing for the same reward and so the more people that use the service, the more energy wasted when someone else solves the problem first

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 has very cheap energy and Toronto has comparatively expensive energy so the city of Medicine Hat makes a better location to put this facility that sucks up energy.

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

The city of Medicine Hat expects to see a lot of money coming in from the company paying its electricity bills and employing local workers.

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

The city of Medicine Hat is concerned that at some points they will not have enough energy to fuel the facility and the residents’ needs at the same time.

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

The natural gas that has to be burned in order to fuel the facility is an environmental concern due to the enormous energy need of the facility.

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

I would probably not be in favour of this proposal because of the impact on residents’ power. The economic benefit to the city would benefit mostly the municipal government and being that my current area is not being developed, it negatively impacts me due to a lack of personal benefit and a possibility of blackouts.