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 & Block chains**

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)? Cryptocurrency is a digital currency where encryption is used to generate units of currency. It is worth more than the traditional currency. One Bitcoin is worth $5,130 (CAD)
2. Bitcoin is the leading cryptocurrency that most people know. What are some other cryptocurrencies and what are their unique features? Some other types of cryptocurrencies are Lite Coin, Ethereal, Ripple, etc... The unique feature about Lite coin for example is the coin limit. The coin limit for Lite coin is 84 million while Bitcoin is only 21 million.
3. “Block chains” are the basic technology behind cryptocurrencies and other emerging technologies. Explain block chains work with respect to:
   1. What they store. The block chains store data
   2. How they work. These blocks are chained together, and this makes the data immutable. When a block of data is chained to the other blocks, its data can never be changed again.
   3. How they are secure and private. Block chains security methods include the use of public-key cryptography. Data stored on the block chain is considered incorruptible
   4. How they use public and private encryption keys
4. How does Bitcoin use block chains?

A worldwide network of computers uses block chain technology to manage the database that records Bitcoin transactions.

1. What are some other real-world applications of block chains?

Protecting endangered species. A Uganda-based NGO, Care for the Uncared, is working with block chain specialists in London to create a new way to track and record species’ health, geographic location, and migration patterns.

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

Some advantages are: Empowered users; users have control of all their info and transactions. Another advantage is high quality data. Block chain data is consistent, timely, accurate, and widely available.

1. Block chain based games are the latest development in the gaming industry. Research the topic “Crypto Games” (google) to answer the following questions.
   1. What are some interesting Crypto Games available for Android or iPhone? Hunter Coin, Spells of Genesis, Beyond the Void, Augments, Bitcomon GO, etc…
   2. How are they different from conventional games? Crypto games are, usually, browser based games that have the use of smart contracts and a block chain for some (or all) of the game’s features.

**Level 2: 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. Who created BitCoin and who owns BitCoin now?  
   Satoshi Nakamoto created BitCoin
2. How is BitCoin created and what is "BitCoin Mining"?  
   Bitcoin is created by a competitive process called mining. This process involves that individuals are rewarded by the network for their services.
3. Can you buy BitCoin and what does it cost?  
   Once you have a Bitcoin wallet, you use a traditional payment method such as credit card, bank transfer (ACH), or debit card to buy Bitcoins on a Bitcoin exchange (example: Coin base). If you purchased $1,000 worth of bitcoin at a price of$1,000 per, you'd have one bitcoin.
4. Why would you want to buy BitCoin and what can you use it for?  
   The reason is that they are hoping that the price will go up, and they can sell them for more than they bought them. You can sell Bitcoin for real money.
5. What are the risks of using BitCoin?  
   Bitcoin is a gamble, not an investment. It's super risky and there are far better places to invest your money securely for both the long- and short-term.
6. How much of BitCoin business is related to criminal activity?  
   Bitcoin is not considered an actual currency and are not backed by the government. Although they aren’t illegal
7. What are some of the reasons why criminals use BitCoin?

Some criminals use bitcoin because users can open a wallet to send and receive bitcoin without giving a name or identity. 

1. What are some of the disadvantages of BitCoin when used for criminal activity?  
   They can take open your Bitcoin wallet and take money without having to give their identity.
2. 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.

I think that Bitcoin is more useful for than just criminal activity. Although some criminals can open your Bitcoin wallet without giving their identity. Bitcoin allows you to buy coins and if the value for Bitcoin raises, you can sell it for more than you bought it for. That means you are gaining profit.   
Guidelines for writing a supported opinion paragraph (SOP)

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

**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?  
   People are worried because it uses a lot of electricity and energy while mining
2. Why does BitCoin mining use so much energy?  
   It takes a lot of energy to run Bit Coin and mine it. While your PC is off or asleep it continues to mine for Bit Coins.
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?  
   They have a facility in Alberta that does not cause blackouts
4. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?  
   It mines Bitcoins with 180 computers in one facility. It mines 20 coins per day
5. What concern does the city of Medicine Hat have about from this Bitcoin facility?  
   people are concerned about the power they use because it uses a lot of power
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. Write a SOP to justify your position.