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)? (It’s an online currency that you can invest in.)
2. BitCoin is the leading crypto currency that most people know. What are some other crypto currencies and what are their unique features? (Bitcoin is one of the biggest crypto currency, but there are others as well. Top coin is a unique currency because the way you can get it. If you download a Top games game, there is a way for you to generate Top coin but it takes a lot of time and grinding. The top coin you generate can also be used for in-app purchases.)

**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 Chain store data of your transactions, the date, dollar amount of your most recent purchases.)
   2. How they work (When a block stores new data it is added to the block chain. Block chain, consists of multiple blocks strung together.)
   3. How they are secure and private (Blockchain technology accounts for the issues of security and trust in several ways. First, new blocks are always stored linearly and chronologically. That is, they are always added to the “end” of the blockchain. If you take a look at Bitcoin’s blockchain, you’ll see that each block has a position on the chain, called a “height.” As of February 2019, the block’s height had topped 562,000.)
   4. How they use public and private encryption keys
2. How does BitCoin use block chains?

(The blockchain is a distributed ledger that enables peer-to-peer transaction in one of the safest environments.)

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

(Advantages: Since blockchain data is often stored in thousands of devices on a distributed network of nodes, the system and the data are highly resistant to technical failures and malicious attacks. Each network node is able to replicate and store a copy of the database and, because of this, there is no single point of failure: a single node going offline does not affect the availability or security of the network.

Disadvantages: Blockchain uses public-key (or asymmetric) cryptography to give users ownership over their cryptocurrency units (or any other blockchain data). Each blockchain address has a corresponding private key. While the address can be shared, the private key should be kept secret. Users need their private key to access their funds, meaning that they act as their own bank. If a user loses their private key, the money is effectively lost, and there is nothing they can do about 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?
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"?
2. Can you buy BitCoin and what does it cost?
3. What can you use BitCoin for?
4. What are the risks of using BitCoin?
5. How much of BitCoin business is related to criminal activity?
6. What are some of the reasons why criminals use BitCoin?
7. What are some of the disadvantages of BitCoin when used for criminal activity?

**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?
2. Why does BitCoin mining use so much energy?
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?
4. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?
5. What concern does the city of Medicine Hat have about from this Bitcoin 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?
7. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.