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)?

* Crypto currency is an asset used as a means of exchanging. It is considered reliable because it’s based on cryptography. Cryptocurrency is broadly defined and it is virtual or digital money which taken if form of token or coins.

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

* **Litecoin (LTC):** It was being launched in 2011, and it is among the initial cryptocurrencies following with the bitcoin.
* Litecoin is based on open source global payment network which is not controlled by any central authority.
* **Ethereum (ETH):** It was launched in 2015, and it is a decentralized software platform that enables smart contracts and distributed Applications (DApps)
* It is to built and run it without any downtime, fraud, control or interference from a third party.
* **Zcash (ZEC):** It is a decentralized and open source cryptocurrency which was launched in the latter part of 2016.
* Zcash is something which offers privacy and selective transparency of transactions.
* Zcash claims to provide extra security or privacy where all transactions are recorded and published on a block chain.
* **Ripple (XRP):** It was launched in 2012, and it enables banks to settle cross border payments in real time.
* It is a real time global network settlement which offers instant, certain and low-cost international payment,
* **Bitcoin Cash (BCH):** Bitcoin cash began its life in August of 2017 as a result of one of these splits.
* It holds an important place in the history of altcoins because it is one of the earliest and most successful hard forks of the original bitcoin.

**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

* They store information about the transaction like the date, time, the dollar amount, as well as who is the participating transaction, and they also store distinguishes from other blocks and they can store all that data up to 1Mb
  1. How they work
* How it works is that the block stores new data and it is added to the block chain.
  1. How they are secure and private
* It is secure because a block is added to the end of the block chain and is very hard to go back and alter the content of the block.
* It not really private because anyone can see the content of the block chain.
  1. How they use public and private encryption keys

1. How does Bitcoin use block chains?

By making transactions made in Bitcoin and are verified by a network of computers

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

Advantages:

* Decentralization, immutability, security, and transparency.
* It allows you to verify without having a third party.

Disadvantages:

* Use of excessive energy.
* It is not a huge distributed computing system.
* Mining does not provide network security.

**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"?

* "It is a new electronic cash system that was completely decentralized with no server or central authority. After cultivating the concept and technology
* A person, group or company mines bitcoin by doing a combination of advanced math and record-keeping.

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

* Before you try to buy the bitcoin you need to make a PayPal account.
* Then it has to be with Coin base, for example use your bank or PayPal to make a deposit into a virtual wallet.
* Which then you have many options to choose from and when your account is funded.
* Which then will take fee it few days to work and then you can exchange the current currency for Bitcoin.

1. What can you use Bitcoin for?

* You can use bitcoin to buy things from [more than 100,000 merchants](https://www.cnet.com/pictures/25-things-you-didnt-know-you-could-buy-with-bitcoins/), though still [few major ones](https://www.cnet.com/news/you-cant-really-shop-much-online-with-bitcoin-says-report/). You can sell it. Or you can just hang on to it.

1. What are the risks of using Bitcoin?

* Bitcoin transactions cannot be traced back individuals.
* The financial value of a bitcoin, however, is highly volatile and may swing widely from day to day and even hour to hour.
* You can never be certain who is selling you bitcoin or buying them from you
* Theft is also a risk.

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

* Almost half of all [bitcoin](https://www.independent.co.uk/topic/bitcoin) transactions are associated with illegal activity, a new study has concluded.

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

* It’s an electronic cash, which easy for the criminal to write down a software which can automatically demand the payment they want.

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

* They believe that the sheer popularity of the [cryptocurrency](https://www.independent.co.uk/cryptocurrency) amongst criminals is a major contributor to its value.
* If criminals turn their backs on bitcoin and start embracing more privacy-focused digital currencies, its value is “likely” to fall, the researchers say.

**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?

Bitcoins are exchanged along a public digital ledger, known as a block chain.

1. Why does BitCoin mining use so much energy?

More and more computing power is needed to mine bitcoin, which requires more and more 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?
2. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?
3. What concern does the city of Medicine Hat have about from this Bitcoin facility?
4. 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?
5. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.