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 virtual or digital money which takes the form of tokens or “coins”. Crypto currencies are different from traditional money because traditional money is physical and you can touch it. Traditional money can also be accessed by credit cards and banks. While crypto currencies are digital and are free from the government unlike traditional money.

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

* Litcoin is like bitcoin in many ways. It has a faster generation block rate and which means it also offers a faster transaction confirmation.
* Zcash (ZEC) offers privacy and selective transparency of transactions. Zcash claims to provide extra security or privacy where all transaction are recorded but details such as the sender and recipient remain private.
* Dash (DASH) is originally known as dark coin. One of their special features is that they offer more anonymity as it works on a decentralized master code network that makes transactions untraceable

**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 transactions like date, time, and amount from you most recent purchase
  1. How they work
* Firstly, you make a transaction. Secondly, your transaction must be verified. They confirm details of the purchase, including the transaction’s time, dollar amount, and participants.
  1. How they are secure and private
* They are secure and private because they cannot be faked on altered.
  1. How they use public and private encryption keys
* Public key is when anyone can put anything there but the only person that can access it is the owner who has the private key

1. How does BitCoin use block chains?

* Bitcoin is not controlled by anyone. Instead, the transactions made in bitcoin are verified by a network of computers. When someone pays using bitcoin, computers on the bitcoin network race to verify the transaction. The completed transaction is publicly recorded as a block where it becomes unalterable.

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

* There are several advantages of block chains such as the transactions are secure, private, and efficient, decentralization makes it harder to tamper with, and it has improved accuracy by removing human involvement in verification. There are also disadvantages that come with block chains which are that it has low transactions per second, susceptibility to being hacked. The website allows users to make illegal purchases in bitcoins. The technology cost is also a disadvantage. The cost of mining a single bitcoin varies by location, from $531 to $26,170.

**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.