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 a virtual money that a person can physically hold and images show that it looks like a coin. It cannot be found in real life but only on mobile devices in the stock market.

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

Litecoin was one of the first crypto currencies that had a block generation, it is not owned by any government, this is for most crypto currencies. Another example of a crypto currency is Ethereum which allows smart contracts to be made without fraud, downtime, or fraud.

**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

Information about recent transaction including date, time, and amount. Even includes information about other people or parties involved in the transaction.

* 1. How they work

After a transaction is made, people need to verify their purchase by adding the amount, time, and the people that are involved. Then, computers check that the information you gave is correct within seconds. All this information is then transferred and stored into a block so the transaction can be done, along with other purchases. After, the block is given An unique code and is added into the block chain.

* 1. How they are secure and private

Hackers cannot steal nor make illegal transactions due to the large amounts of accounts. So, the hacker would need to hack the whole block chain and not only one. This makes crypto currencies very secure. It is not that private when many number of people have access to it.

* 1. How they use public and private encryption keys

Encryption keys are used as a locker combination where only the person that knows the combination can access the goods. An entire block chain is maintained by a group of users. Also, the program will ensure that the block chain does not have any duplicates blocks by deleting the shortest block that copies another.

1. How does Bitcoin use block chains?

Bitcoin uses block chains when someone pays with bitcoin, computers verify the purchase by solving a hash. This allows the currency to be unique and it does not have to be controlled or managed by anyone.

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

Some advantages of block chains are that it is cost reduction, secure, private, easy to understand. Some of the disadvantages are large cost of technology, slower purchase speed, could be used for criminal activities, possibility of being hacked into.

**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?  
   Some interesting crypto games available on Android or iPhone are Casa Tookan Wallet, Trust Wallet, and Guild Chat Wallet.
2. How are Crypto Games different from conventional games?

Crypto games are different than conventional games for many reasons. One difference is that crypto games use block chain technology with crypto currency. Another difference is that crypto games gives you crypto currency from activities done in the game and they are limited to mostly mobile devices. All conventional games do not have these key factors.

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

Some other real-world applications of block chains beside games and crypto currencies are tracking a package, retailing, and most banks.

**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 by a group of people who wanted to create electronic currency and it is mined solving and inscribing math problems.
2. Can you buy Bitcoin and what does it cost?  
   Anyone can buy bitcoin if they have the money by investing in it through the stock market. Then, you make an account and linking your bank account to it for moving goods such as bitcoin. It costs how much you want to have in Bitcoin.
3. What can you use Bitcoin for?  
   You can use bitcoin for to buy products online or in retail stores if they accept crypto currency. You can even invest in bitcoin when it is cheap and when the stock increases then you can sell it to make a profit.
4. What are the risks of using Bitcoin?

One risk of using bitcoin is that it’s value could drop dramatically, which makes you lose a lot of money. Another risk is that when you buy bitcoin you do not know who is selling it to you such as a criminal, also you can be scammed by buying the bitcoin but not receiving it by con artists.

1. How much of Bitcoin business is related to criminal activity?  
   44% of bitcoin business is related to criminal activity for many reasons such as scams, drug deals, and a general payment method for buying illegal things.
2. What are some of the reasons why criminals use Bitcoin?

Some reasons criminals use bitcoin is because it conceals their identity, allows criminals to store their money safely, it will not raise suspicion.

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

Some of the disadvantages of bitcoin being used for criminal activity are that every transaction is stored and it can be tracked back to the point of location, time, date, and other information.

**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?  
   Bitcoin miner is as the process of solving complex math problems by using computer processing power and people are concerned about it because it uses a lot of mining.
2. Why does Bitcoin mining use so much energy?  
   Bitcoin mining uses a lot of energy because it has many computers at work, trying to solve 26 quintillion hashes every second.
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 choose to go to this province in Canada because they need gas-fired generation, and Alberta could easily provide then with that.
4. What benefits does the city of Medicine Hat expect to see from this Bitcoin facility?  
   Medicine Hat expects to see a boost in their economic status through supplying Hut-8 with their desired resources.
5. What concern does the city of Medicine Hat have about from this Bitcoin facility?  
   The city of Medicine Hat is worried about environmental effects, the safety of citizens, and the likelihood of a power outage.
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?  
   Some concerns are that the city can be effected because bitcoin mining could hurt the environment because they need a lot of electricity and this facility is using a lot of fossil fuels for their computer’s large need of energy and other resources.
7. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.

If Hut-8 wanted to build a facility in Brampton they would not be able to host facility due to its large population and the city is already so overwhelmed and this facility would just be doing worse because it needs a large amount of energy. Also, taxes will skyrocket, city would need more suppliers, and there would be a higher chance of a blackout.