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 cryptocurrency is a virtual or digital money which takes the form of tokens 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?

Some other types of cryptocurrency include Ethereum and ripple which are used more for enterprise solutions. Another is Litecoin which has a faster block generation rate meaning it offers a faster transaction confirmation and is equal to 43.41 dollars.

**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’s about transactions like the date, time and dollar amount f your most recent purchases. The Block is stored in a public database ( the chain).

* 1. How they work

When a block stores new data it is added to a blockchain. It consists of multiple blocks strung together. First a transaction must occur, then the transaction must be verified, next the transaction must be stored in a block and the block has to be given a hash.

* 1. How they are secure and private

Anyone can view the contents of the blockchain but the user can opt out to connect their computers to the blockchain network. The blocks are also difficult to go back and alter the contents of the block. A public key is used by anyone but a private key is only accessed by the user of the account.

* 1. How they use public and private encryption keys

In the bitcoin network the blockchain is shared and agreed upon by a public network of users.

1. How does BitCoin use block chains?

When you make a transaction on the blockchain that transaction is sent out too many nodes within the bitcoin network. The blockchain is also a shared public ledger on which all the bitcoin network relies on.

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

Some disadvantages of blockchains are technology cost as the system that bitcoin uses to confirm transactions consume vast amounts of computational power. Others include speed inefficiency and illegal activity. Some advantages include the distributions as the blockchain data is stored in thousands of devices

**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?

Casa Tookan Wallet

Trust Wallet

Guild Chat Wallet

1. How are Crypto Games different from conventional games?

One difference is that they use block chain technology with crypto currency. One can also earn crypto currency through various activities in the game and they are limited to mobile devices.

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

Tracking a package

Retailing

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 was created by a group who wanted to create an electronic currency and it is mined by solving and inscribing math problems.
2. Can you buy BitCoin and what does it cost?  
   You can buy bitcoin by investing in it through the stock market. Then, you can create an account on a certain base and linking your bank account to it to move the goods.
3. What can you use BitCoin for?  
   You can use bitcoin to buy products from many merchants, or sell it for money.
4. What are the risks of using BitCoin?  
   The value of the Bitcoin can drop dramatically at any time and you could lose your money. You can never be certain who you are buying bitcoin from and you can be scammed.
5. How much of BitCoin business is related to criminal activity?  
   44% of bitcoin transactions has been used for illegal actives as people use them for scams, drug deals and a general payment method.
6. What are some of the reasons why criminals use BitCoin?

It allows people to conceal their identity, it 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?  
   Every transaction is stored; it can be tracked back to the point of origin or location of the device.

**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?  
   It is the process of solving complex math problems by using computer-processing power and people are concerned because they use a lot of energy.
2. Why does BitCoin mining use so much energy?

It uses a lot of energy since it has so many computers at work and they are working to solve 26 quintillion hashes every second.

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?  
   They choose to go to this place because they needed gas-fired generation, and Alberta could easily provide them with that.
2. 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.

1. What concern does the city of Medicine Hat have about from this Bitcoin facility?

Medicine hat worries about the environmental effects, the safety of the people, and the likelihood of a power outage.

1. 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?

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.

1. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.

This company would not be able to host a facility in Brampton due to its large population. This will lead to the city being overwhelmed as the city is demanding a large amount of energy, the taxes will sky rocket, the city would need more suppliers, and there would be a higher chance of a blackout.