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: Digital money which can take forms such as coins or tokens.

1. BitCoin is the leading crypto currency that most people know. What are some other crypto currencies and what are their unique features?
2. Litecoin: has a faster block generation rate leading to faster transaction rates.
3. Dash/Darkcoin: more secretive than bitcoin being almost anonymous.

**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
2. They store information about transactions like, date, time and dollar amounts.
   1. How they work
3. Blockchain works by stringing together many blocks together to form a chain of information.
   1. How they are secure and private
4. The blocks that contain the information are very hard to alter, since you would need to change the thousands of blocks ahead of the chosen block.
   1. How they use public and private encryption keys
5. A private key is a shorten version of a public key.
6. How does BitCoin use block chains?

Bitcoin uses blocks to store information about monetary transactions.

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

* Blockchains never stop completing tasks unlike, banks but there’s a significant technology cost associated with mining bitcoin.

**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?  
   - My CryptoHeroes
2. The Multiverse
3. How are Crypto Games different from conventional games?

* Some of the currency earned in game can be used to exchange

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

* Banks could use blockchain technology to track monetary transactions completed at the bank.

**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 a digital currency that is decentralized, meaning there is no government controlling it. Bitcoin can be mined by using extreme computer hardware that does mathematics about transactions and other various operations and after the “miner” completes the work they get a cut of the bitcoin used in the transactions.

1. Can you buy BitCoin and what does it cost?  
   - You could buy Bitcoin by using a digital currency service like paypal and going to a private company where you can exchange money for bitcoin.
2. What can you use BitCoin for?  
   - you can use bitcoin to buy many things from online merchants or hang onto it and sell it for later at a higher price that you bought it for.
3. What are the risks of using BitCoin?  
   - The value of bitcoin can change at any time leading to many lost investments.
4. How much of BitCoin business is related to criminal activity?  
   Bitcoin has been used on the silk road which is a dark web site used for drugs and other illegal substances.
5. What are some of the reasons why criminals use BitCoin?

* You cannot be tracked from individual transactions of bitcoin

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

* The coins used could eventually be tracked back to you and end up in a arrest.

**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?  
   - People who assit in bitcoin transactions are called miners. single bitcoin transaction uses as much electricity as a typical Canadian home would consume in a month.
2. Why does BitCoin mining use so much energy?  
   - Computers used for bitcoin mining are on 100% of the time leading to high energy costs because of high power use components and being on 24 hours a day.
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?  
   -Medicine Hat owns its own natural gas and electricity generation and distribution businesses. So the bitcoin production can use as much power as it needs.
4. What benefits does the city of Medicine Hat expect to see from this BitCoin facility?  
   - It will gain a financial boost from the 40 works employed.
5. What concern does the city of Medicine Hat have about from this Bitcoin facility?  
   The energy used by the bitcoin mining would eventually lead to increased carbon emissions.
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?  
   The energy used by the bitcoin mining would eventually lead to increased carbon emissions.
7. If Hut-8 wanted to build a facility in Brampton, would be in favor of this proposal? Explain why and why not.

* No because, the carbon emissions created by the mass power use would be a problem to fight carbon In the atmosphere.