Cyberspace: Information Security & Digital Forensics
Lesson Plan
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- **Cyber Ethics [lesson 1]**
  - Staying safe online
  - Proper and ethical behavior online (Online interactions)
  - Important cyber values
    - CIA Triad
  - How to identify things like phishing and scams

- **Cybersecurity right now and it's future. [lesson 2]**
  - What is cybersecurity?
    - Small intro
  - Different types of cybersecurity
    - Preventative
    - Offensive
    - Incident Response
    - Digital Forensics
    - Cyber law and cyber crime
    - Networking and cyber systems
  - Jobs and careers in cyber security
    - (I suggest a talk with an actual industry professional)

- **Computer networking, internet protocols, and encoding [lesson 3]**
  - Networking
    - OSI Model
    - TCP/IP
      - IP addresses
      - TCP Protocol, flags(scanners)
  - How computers communicate with each other
  - Server and Client relationships
  - Internet protocols
    - HTTP/HTTPS
      - POST vs GET request
      - Construction of RESTful requests
    - APIs
      - How is HTML served to you on the browser
    - DNS
      - A records
      - CNAME
      - PTR record
- FTP

- SSH
  - Command Usage
  - Encryption (telnet no have encryption because telnet no have brain)
  - Example
  - How a typical page query looks like behind the scenes (DNS lookup, send TCP flags, back and forth communication)

- Encoding/how data is transferred
  - What is unicode
  - Transferring data with things like base64
  - Hex and binary data, data on a low level

- Digital Forensics and Cryptography [lesson 4]
  - Steganography/Data in image files
    - How files work, what are files?
      - Windows file artifacts
      - Autopsy
      - FTK Toolkit
  - Strings
  - Metadata
  - LSB data
  - Spectrograms

- Forensic data
  - Autopsy
  - Collecting evidence
  - How files leave behind traces, computer memory

- Wireshark
  - Review of networking
  - An interaction between a server and a client in action

- Cryptography
  - Basic ciphers, block vs stream ciphers
  - How it's used in cybersecurity
  - SSL/TLS