Lesson Plan

Cyberspace and Cybersecurity: Introduction

Length
One 45-minute period
Grade Level
High School

Learning Objectives

- Students will understand the development of the internet including how its worldwide, decentralized structure has led to issues around regulation and sovereignty.
- Students will identify how much the internet is part of daily life.

Cyberspace and Cybersecurity: Introduction

Guided Reading Handout

Presentation

Class

1. **(5 Minutes) Warm Up:**
   - **Ask:** Students to create a working definition for "the internet." What services or activities would they consider to be part of "the internet"? Why?
   - **Think -Pair -Share:** Ask students to think about all the different ways they use the internet in their lives. Create a list and discuss with a neighbor. Share as a class.
   - **Whiteboard:** Write a bulleted list of ideas shared by students (This will be helpful later in class).
2. **(12 Minutes) Watch:** *What is Cybersecurity?* (7:16)
   - **Ask:** *How does the history of the internet explain its issues now? Why is the internet governed in such a fragmented way? What are the pluses and minuses of this patchwork control? How does the international reach of the internet complicate its regulation?*
3. **(20 Minutes) Activity:** Have students work in pairs or small groups to brainstorm and create a poster entitled "Timeline of Daily Internet Use." This poster should include the typical use of a student during a school day from them waking up, commuting to school, navigating the day, etc. The poster should include typical times they use internet services and how they use them. Request a minimum of 10 items with times, name of service, and brief description.
   - **NOTE:** The goal here is to show students how prevalent the internet is in nearly every aspect of their lives… i.e.: Netflix, YouTube, iMessage, Snapchat, etc. are internet services.
   - **NOTE:** While students should talk through ideas on their own the only things that should be excluded are standard phone calls and text messages. (Things that could be included are: websites, music + video streaming, social media, electronic payments like Venmo, navigation, etc.)
4. **(8 Minutes) Wrap Up/ Discuss:** Share out how the internet is used in their daily lives. What would life be like for them without the internet? How would life as a student have been different from their parents? Grandparents?

Homework

- Have students complete ONLY Parts 2+3 of the guided reading handout.
  - *How Does Cyberspace Work?*
  - *The Origins of the Internet*

Extension

- Have students speak with parents, grandparents, or older family members about how life was different for them as students (i.e: before smartphones/ streaming/ social media). They can also interview teachers or other adults. Students should take notes and be willing to share at least 10 items that were different for older generations compared to the poster they made. (This can also be found on the Classroom Discussion Guide).

Vocabulary

Advanced Research Projects Agency Network

a closed computer network that transmitted its first successful message in 1969. Arpanet is considered to be the major precursor to the internet.

cyberattacks

intentional and malicious encroachment by an outside actor on computer networks, websites, or other cyber infrastructure.

domain name

a series of characters—letters or numbers—that represents a website, such as "cfr.org." Domains are related to, but distinct from, URLs and IP addresses.

international waters

the parts of the ocean outside the jurisdiction of any particular state, theoretically belonging to everyone—as opposed to territorial waters, which extend to twelve nautical miles from a country's coastline and constitute sovereign territory.

internet service provider

a company that provides internet access to subscribers.

IP address

a unique series of numbers assigned to each website or device connected to the internet.

least developed countries

low-income countries, mostly in sub-Saharan Africa and parts of Asia, that face substantial hindrances to development. The list of such countries is decided by the UN Economic and Social Council. People who live in LDCs often lack access to basic infrastructure, including the internet.

Morris worm

a computer virus released in 1988 by Robert Tappan Morris, then a graduate student at Cornell University and now a professor at the Massachusetts Institute of Technology, that infected 10 percent of all networked devices in existence. Although he was prosecuted for transmitting the worm, Morris is also credited with revealing major vulnerabilities in networked computers and putting a spotlight on internet security.

Outer Space Treaty

a 1967 treaty, officially called the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, that defines space as a global commons, free for exploration and peaceful use by all.

UN Convention on the Law of the Sea

a 1994 international agreement identifying what parts of the ocean countries control and how. The agreement defines the twelve nautical miles of ocean extending from the coastline as a country's sovereign territorial waters, waters in which foreign vessels may sail for transit purposes but may not fish, spy, or pollute. Maritime areas beyond territorial waters are international, but UNCLOS does place further restrictions on areas up to 200 nautical miles away from a country's shoreline.