Unit #2: The Internet

Content Area: **Template**
Course(s):
Time Period:
Length:
Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

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Learning Objectives

- Artists will be able to use IP Addresses to send messages to specific people.
- Artists will communicate digital information.
- Artists will explore the following internet dilemmas: Net Neutrality, Internet Censorship, or the Digital Divide.
- Artists will explore the internet design philosophies of openness, reliability, and scalability and how government affects these philosophies.
- Artists will explore the physical aspect of a network.
- Artists will learn how devices communicate with each other.
- Artists will make the connection between observations about multiple pathways and the concept of fault-tolerance.
- Artists will understand the User Datagram Protocol (UDP) and the Transmission Control Protocol (TCP).

Essential Skills

- Describe how HTTP is used for sharing the files and pages that make up the World Wide Web
- Describe how information flows through the Internet as a datastream of packets
- Describe how the Domain Name System helps the Internet scale by allowing devices to find the IP addresses associated with a domain name
- Describe how the redundant nature of networks can lead to dynamic, fault tolerant routes
- Describe the way the Internet Protocol helps uniquely identify one another on the Internet
- Explain how computing devices can be connected to form a network
- Explain how data is routed through the Internet
- Explain how different layers of protocols on the Internet build upon and rely on one another

- Explain how packet numbering and re-ordering can allow for large messages to reliably be sent even if packets are dropped or arrive out of order
- Explain the differences between the Transmission Control Protocol (TCP) and User Datagram Protocol (UDP)
- Explain the need for open and shared protocols for communicating on the Internet
- Identify how an internet dilemma has the potential to benefit and harm different stakeholders
- Identify questions they have about how the Internet works
- Identify the path(s) connecting two devices in a simulated network
- Identify the ways the technical structure and design of the Internet contributes to a social dilemma
- Use the Internet Simulator to communicate information with a partner

Standards

CS.9-12.8.1.12.IC.3	Predict the potential impacts and implications of emerging technologies on larger social, economic, and political structures, using evidence from credible sources.
CS.9-12.8.1.12.NI.1	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.
CS.9-12.8.1.12.NI.3	Explain how the needs of users and the sensitivity of data determine the level of security implemented.
CS.9-12.8.2.12.EC.1	Analyze controversial technological issues and determine the degree to which individuals, businesses, and governments have an ethical role in decisions that are made.
CS.9-12.8.2.12.ITH.3	Analyze the impact that globalization, social media, and access to open source technologies has had on innovation and on a society's economy, politics, and culture.

Instructional Tasks/Activities

- Classroom Discussions
- Debugging
- Exploration/Internet Simulator Activities
- Formative Assessments
- Journaling
- Pair Programming
- Peer Feedback
- Project Internet Dilemmas
- Worksheets

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ

- electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- identify the error problems
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- response and analysis questions
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Code.org
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Slides
- Google Slides
- Internet Simulator
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- code.org
- Internet Simulator