**Lesson plan (# )**

| **Adopted from:** **Authors: (Your sub group’s name here) Lavache, Lee, Monserrat, Scala** | **Grade: 12** | **Lesson duration: 42** |
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| **Topic/Title of lesson:** Understanding your network address and how we connect with each other |

| [**STANDARD(s) ADDRESSED**](https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CSDT.pdf)*(Include the performance expectation number and text of each standard.)* | **8.1.12.NI.1:** Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing. |
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| **CS PRACTICE(s)** *that students will engage in throughout the lesson.* P [13-15](https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CSDT.pdf) of NJSLS | Students will be able to 1. Develop an understanding of terminology related to networking and the internet to include: Routers, switches, servers, topology and address.
2. Students will be able to model how the terms represent the ecosystem of networking and the internet (using various modalities)
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| **CS CORE IDEA(s) or** **SUB-CONCEPT(s)** *related to the performance expectation(s).* P [20-34,](https://www.nj.gov/education/cccs/2020/2020%20NJSLS-CSDT.pdf) includes core idea and performance expectations which are useful for designing general goals, specific objectives, and learning criteria down below | The scalability and reliability of the internet are enabled by the hierarchy and redundancy in networks.1. Going to a friend’s house describe
2. Ordering something on the internet and having it delivered to your house
3. Meeting/Socializing with people of like minds but never physically meeting them
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| **CENTRAL FOCUS** *(The central focus is an overarching goal of the lesson or big idea for student learning.)* | * Students will focus on how networking devices, hardware and protocol supports the use of the internet from a concrete perspective to a more broad sense of how we connect/communicate increasing scalability on a reiterative pattern of processes.
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| **EU/EQ** (*The enduring understanding(s) and/or essential question(s) that guide the lesson.)**Here are some useful examples from math:* [*https://jaymctighe.com/downloads/Essential-Questions-in-Mathematics.pdf*](https://jaymctighe.com/downloads/Essential-Questions-in-Mathematics.pdf) | Q. What does an IP address tell you? Types of IP addresses?Q.Compare and contract an IP Address to a home address and how they are used. Q. How do electronic messages arrive at their final destination?Q. What is the relationship of the four networking and hardware devices discussed that impacts how the IP address functions?Q. How can you best secure your IP address? |
| **PRIOR KNOWLEDGE AND CONCEPTIONS** *(What prior knowledge, skills and/or academic language do these students need to have that will help them be successful with this lesson? Any misconceptions you may anticipate?)* | Mathematics: Various numbering systems, base 10, base 2, hexadecimalWhat is the purpose of one’s physical address?What is meant by an ecosystem? |

**UDL/PLANNED SUPPORT**

*(Discuss the universally designed decisions guided by learner diversity and/or individualized adaptations for the variety of learners in your class/group who may require different strategies/support (e.g., children with IEPs or 504 plans, English language learners, children at different points in the developmental continuum, struggling readers, and/or gifted children).*

| **UDL:***How are you universally designing your lesson with all your learners in mind? What other characteristics of diverse learners should be considered?* | **Multiple means of** [**representation**](https://udlguidelines.cast.org/representation) | **Multiple means of** [**action and expression**](https://udlguidelines.cast.org/action-expression) | **Multiple Means of** [**engagement**](https://udlguidelines.cast.org/engagement/?utm_source=castsite&utm_medium=web&utm_campaign=none&utm_content=aboutudl) |
| --- | --- | --- | --- |
| **Video:** [**What is my IP Addres**](https://whatismyipaddress.com/ip-basics)**s?** [**What is an IP Address?**](https://www.youtube.com/watch?v=ak9fzojnMaM)Video Simulation of Data Traveling in a Network: [Link](https://youtu.be/O7CuFlM4V54) |  | Students create model of ecosystem of networking & Internet (Potentially Interdisciplinary to science, mathematics with urban planning)  |
| **Additional ADAPTATIONS, MODIFICATIONS, and SUPPORTS for individual learners (IEPs, 504s, ELLs)** *If you were not able to meet your focus learners needs through UDL, what individual adaptations will you use to meet your focus learners needs (especially ELLS)* |  |

| **ACADEMIC VOCABULARY/****LANGUAGE (including different coding languages)/****SYNTAX (rules of how to combine symbols to make “correct” statements)**  | *Vocabulary:* IP (Internet Protocol)routers, switches, servers, topology, and addressing*Language:* Concentric circles or the hierarchy to get to the specific IP address*Syntax:* | *Describe the additional support for each language demand in this lesson. Address both the whole class and individual needs.* |
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| **LEARNING OBJECTIVES** | **LEARNING CRITERIA** *(How will you know that students have met and/or are moving toward meeting that LO?)*Students will be able to 1. Explain the terminology and how data/information travels through the internet.
2. Explain what an IP address is.
3. Compare and contrast an IP address and a MAC address
 | **ASSESSMENT** *(What will be the pre assessment, formative, or summative assessment(s) in this lesson?)*Students will be able tocreate model of networking * Ecosystem
* Nervous system
* Urban Planning
 |
| **Should include both core ideas and concepts, and practices**  | **HW** Research how to secure your IP addressDriving Questions Q. Can someone track me with my Internet Protocol address?Q. What is the impact of someone hacking your IP address? | ***Pre-Assessment:******Formative:******Summative:***[***https://www.wpbeginner.com/glossary/ip-address/***](https://www.wpbeginner.com/glossary/ip-address/) |

**MATERIALS, RESOURCES, and INSTRUCTIONAL TECHNOLOGY**

| **What resources and technology do you need to teach the lesson:*** Packet Tracer Software: [Link](https://www.netacad.com/courses/packet-tracer)
* Video Simulation of Data Traveling in a Network: [Link](https://youtu.be/O7CuFlM4V54)
* Networking Topology: [Link](https://www.itjones.com/blogs/2020/11/22/a-guide-to-network-topology)
 | **What materials, technology will students need?****Reading:** [**What Is an IP Address? (Definition + Explanation for Beginners) (wpbeginner.com)**](https://www.wpbeginner.com/glossary/ip-address/)[**Network Topology**](https://www.dnsstuff.com/what-is-network-topology)**What is IP address?**[**https://whatismyipaddress.com/ip-basics**](https://whatismyipaddress.com/ip-basics)[**https://www.youtube.com/watch?v=ak9fzojnMaM**](https://www.youtube.com/watch?v=ak9fzojnMaM) |
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| **Student devices, network access*** Individual student computer
 | **Should reflect the UDL planned supports identified above** |

**INSTRUCTIONAL STRATEGIES AND LEARNING ACTIVITIES**

*(Describe explicitly what the teacher and the students will do to meet learning outcomes. Use bulleted or numbered list)*

|  | **What is the teacher doing?** | **What are students doing? (including adaptations)** |
| --- | --- | --- |
| **LAUNCH/****Beginning ( mins)***How will you engage students and capture their interest? 3-7 minutes* |  |  |
| **LEARNING ACTIVITIES/****Middle ( mins)***“I do” “We do” “You do” How will you explain/ demonstrate knowledge /skills required of each objective? How will you ensure that students have multiple opportunities to practice? How will you address the academic language demands?* | **link :**[**Activity17-Internet (code.org)**](https://code.org/curriculum/course3/18/Activity18-Internet.pdf) |  |
| **CLOSURE/****End ( mins)***How will students summarize and state the significance of what they learned? 3-7 minutes* |  |  |
| **Extension/Reinforcement/Homework:**  |
| **Family/Community Engagement—** |

**\* Please attach copies of assessments and/or handouts to be used**