Medelyn Martinez **Unit Topic:** IP Addressing

**Grade Level:** Junior Cisco Networking **LP#2**

**Learning Standard:**

* **Career Development and Occupational Studies CDOS Standard 2:** Integrated Learning encourages students to use academic concepts, facts, and procedures in applications related to life skills and the world of work.
* **CDOS Standards 3a:** Students will demonstrate mastery of the foundational skills and competencies essential for success in the workplace.
* [**CCSS.ELA-LITERACY.W.11-12.2.A**](http://www.corestandards.org/ELA-Literacy/W/11-12/2/a/) **(Common Core Standard English Language Arts) :**Introduce and organize complex ideas, concepts, and information so that each new element builds on that which precedes to create a unified whole.

**Materials:** PC with Internet, Notebook, Pen, Packet Tracer
**Do Now:**  Given the IP address 10.129.23.1 Identify the following:

* IP Class
* Subnet Mask

IP Class: Class A

Subnet Mask: 255.0.0.0

**Motivation:** We already know that every device needs an IP address. But how does this device get there IP address?

* I think device get thier to IP address randomly from the Internet
* I think every device has an IP address already configured to it

There are two ways for a device to receive IP address and there's are various types of IP address.

**Aim: How to identify various IP address types?**

**Instructional Objectives: SWBAT**

* Differentiate Static and Dynamic IP Addresses
* Compare and Contrast Public and Private IP Address
* Explain the function of APIPA

**Presentation:**

Slide 1:

In a different lesson we talked about IP address classes: A, B, and C. The first octet of an IP address dictates the class. Let's list the address ranges.

* Class A: 1-126
* Class B: 128- 191
* Class C: 192- 223

Slide 2

Now every computer/mobile device need an IP address and there is a total of 4,294,967,296 available address. How people live on earth right?

* 94,967,296 available address.

How people live on earth right?

* 7.6 billion people

If half of those people had at least one computer device would we have enough IP address for all of them?

* That would be over 4 billion
* No, because in some cases people have more than one computer device needing around 8 billion addresses

Slide 3

This was a major issue when the internet and computer first began. People didn't expect the internet to become so popular and they didn't have enough IP address for everyone, so they created Private IP address.

This cut down the amount of IP address needed.

Slide 4

If you ever noticed that 127 is not included in either the A or B range. That’s not a mistake. 127 is the first octet is an IP address that is reserved IP address. The address 127.0.0.1 is used to test the communication or transportation medium on a local network card and/or for testing network applications.

You can’t assign this number to any host, anything starting with 127 so its excluded from the address class range.

Go on your PC and open command prompt. Then type in ping 127.0.0.1. What do you see?

Slide 5

Based on the following images what do you think is the difference between a Static and Dynamic IP address?

* Based on the image I think a Static IP address doesn’t move and Dynamic IP address is moving or jumping.

Static IP address that was manually configured for a device and do not change. Dynamic IP is an IP addresses that is assigned to a computer when they get connected to the Internet each time always changing

Go on your PC and open command prompt. Type in ipconfig /all.

Dynamic IP address utilize a DHCP server which randomly select an IP address form a pool of address.
Who do you think would what to set up a DHCP server?

* Companies with millions of hosts by setting a DHCP server they wouldn't have to configure each computer IP address manually

Slide 6

There are cases when a device cannot contact the DHCP server. If this occurs a device would automatically be configured with an APIPA address.

 **Summary: Students will summarize the lesson via Kahoot!**

<https://create.kahoot.it/details/ip-address-types/71ec1758-991e-472f-966b-1ac8d50cb7ce>

If any issues occur with technology, I will ask the students the questions and they response verbally.

1. How do private and public IP address differ?

Private IP address are used within a network, while Public IP address are used on the internet.

1. If a computer cannot connect a DHCP server it will receive an \_\_\_\_\_\_\_\_\_ address.

When a device cannot contact the DHCP server it will automatically be configured with an APIPA address. The address begins with 169.254.

1. True or False... Static IP Address are always changing and utilize a DHCP server.

Static IP address that was manually configured for a device and do not change. While, dynamic IP addresses are assigned to a computer when they get connected to the Internet each time always changing

**Immediate Application:** IP address Types Worksheet.

**Homework:** You are to create a real-life scenario for all the terms we discussed today.