Daily Lesson Plans – Lesson 4

Instructional Days: 6 - 7

Topic Description: This lesson is a deeper look into the topic of Security. In the previous lesson we took a deeper dive into privacy. This lesson will demonstrate how privacy and security are intertwined. If you want your privacy, then you need security. Now the question seems to be do we only want half security measures so we can give up a little privacy? Doesn't seem to make sense.

Objectives:

The students will be able to:

- Differentiate between the four different levels of security
- Explain ways in which they can make their home router more safe
- Describe the basic principles networking
- Be able to use the programs ipconfig and ping

Outline of the Lesson:

- Introduce and Discuss the four levels of security (20)
- Take students on a tour of the IDF and MDF (15)
- Introduce the home router to the students and talk about how insecure most routers are (10)
- Introduce the students to some basic vocabulary about routing (10) (End of 1st day)
- Demonstrate the ipconfig and ping programs to the students (15)
- Students practice using both programs, and test them on what they see when they run them (20)
- Demonstrate the basics of setting up a home router (15)

Student Activities:

- Students take a tour (to see that the rooms are secure) of and IDF and an MDF. (Intermediate and Main Distribution Frame)
- Students demonstrate they can find the home routers basic settings.

Teaching/Learning Activities:

- Introduce and Discuss the four levels of security
    - o Introduce the four levels of security, physical, human, operating system, and network security.
    - o Go deeper into all four levels of security
- Take students on a tour of the IDF and MDF
    - o Give students a tour of the IDF and MDF, so they can see that physical security is very important
    - o If possible I hope students can look inside the distribution frames.
- Introduce the home router
    - o Talk about how insecure a home router usually is but we will show how the students can make their routers safer
    - o Show the students the router password page. This page gives every default password for most routers on the market

- o   It's difficult to understand routing without some basic vocabulary
- Introduce the students to some basic vocabulary
  - o   Define and discuss URL
  - o   Define and discuss IP Address
  - o   Define and discuss DNS

- Demonstrate the ipconfig and ping programs
  - o   Demonstrate the ping program
  - o   Explain the output of the program so students understand what it does
  - o   Demonstrate the ipconfig program
  - o   Explain the output of the program so students understand what it does
- Demonstrate the basics of setting up a home router
  - o   Use the final slides in the Security PowerPoint to show some of the basic settings in a home router.
  - o   Using the router passwords site and ipconfig to get the settings they should be able to go around in the home router and take a peek, with parents' permission of course.
  - o   Assign Network IPConfig Homework assignment and have them fill in the blanks, as well as the parent's signature.

Resources:

- Security PowerPoint
- **http://www.routerpasswords.com** All default passwords for standard home routers
- Network Ipconfig Homework Assignment

Notes for the Future:

- The students thought the IDF's and MDF was a good experience. It would be better if the MDF was a bigger room with more things but still has impact.
- The router introduction needs to go a little slower. They understand (somewhat) what their home router is but without prior technology knowledge most are confused at what it does.
- The basic vocabulary is good, but needs to be repeated a few times.
- There was certainly a pushback from some parents concerning their home router. I had some upset at why I'm asking students to do anything on their router. This was disturbing. Explanation to parents is helpful but I do not feel good about the implications here.
- Walking through the IPCONFIG exercise at school is good but parents are telling the students not to give out that information or the students don't do the assignment and tell me the same thing. I've noticed