An Introduction to Networking

TOPIC: NETWORKING

GRADES: K-2, 3-5, 6-8

LESSON DURATION: 45-60 MINUTES

SOFT SKILLS: COMMUNICATION; COLLABORATION

Introduction:

• This activity is designed to give students a basic understanding of networking while showing the ways in which we are connected to others. A safety discussion should follow. This lesson can be used in any class, with any age. It is teacher-friendly and works especially well in schools that have a desire to teach online safety without the resources to do so.

Learning Outcomes:

• Through the completion of a hands-on activity, students will understand how information moves through a network, how connected users are, and the safety issues involved in posting information online.

Materials:

• A ball of yarn
• Space to spread out
• Online safety tip sheet

Activities:

1. The teacher should explain that students will complete a basic activity to learn how the internet works.
2. Spread the students out throughout the classroom. Designate one student as the server. If the class is large; the teacher may choose to split the class into two groups. Each group needs a server and a ball of yarn. The groups should remain separate from each other.
3. Explain the activity. In this activity students will pretend to send a picture through email. The ball of yarn will serve as the visual representation of the picture being sent. <u>All picture transfers must go to the server first.</u>
   A. Ask for two student volunteers. One student will be the server. They should stand somewhere in the room and not move. Everyone should be able to see the server.
   B. The other volunteer should be given the ball of yarn. The teacher should explain the scenario: The student holding the yarn has decided to email a picture to another student. The student should pick one other student to "send the photo" to via email.
   C. The student volunteer should hold onto the yarn but pass the ball of yarn to the server. The server should hold onto the yarn and then pass to the student who was designated to

receive the picture. That student then chooses someone to email the photo but before the student receives, the ball of yarn must go back to the server. The server then passes it to the student. This should continue until all students have received the photo.

4. When the activity is complete, have students slowly drop the yarn to the ground. They should see the spider web of activity that they produced. This is (basically) how information moves through a network.

5. A discussion regarding online safety and proper behavior can follow. Ask the students some questions. *(Teacher discretion for this aspect-dependent on age of learner)*
    A. What if _____ wants to delete the email? Is it gone? Where else does the email reside? (All other students, the server, and anyone else who received it-including those who may have taken a screenshot of the photo)
    B. What if all the users delete the photo/email? Is it gone? (No-still on the server; someone could have taken a screenshot and passed it onto others on another network with another server)
    C. What does that mean for our actions online? (Our actions are on a server forever. Good and bad. This is called a digital footprint. Employers, future schools, friends, enemies can see some of our actions by just doing a simple Google search. Law enforcement can access our actions by looking at digital forensics and network traffic).
    D. What other safety issues might exist in a network? (people may try to intercept traffic/ servers may be hacked and information leaked/ a user may click on an email that contains malware-which will then spread to all devices in a network)
    E. What are some examples of (more) secure networks? (Home, hotspots with a VPN, running a VPN with a personal network) What are some examples of dangerous networks? (Public Wi-Fi, hotel Wi-Fi, Wi-Fi with an open and known password that all users know, etc.) Is it okay to use public Wi-Fi? (only if you are doing something that does not involve personal and confidential information-banking, social media, etc.--those things should be done on a secured network).

6. Hand out the tip sheet and encourage students to share this with their parents.

Follow-up Activities:

1. This lesson could lead to follow up activities on email and/or social media etiquette.