

A Basic Introduction to Networking

TOPIC: NETWORKING

GRADES: 3-5

LESSON DURATION: 45 MINUTES

SOFT SKILLS: COMMUNICATION, COLLABORATION

Learning Outcomes:

- Students will demonstrate a basic knowledge of the history and workings of the internet as a means of mass communication and a network of connected users.
- Students will be able to define networking and understand the basics of how a network of computers operate through completion of an unplugged activity.

Materials:

- A ball of string

Activities:

1. NOTE: the first part of this lesson is included in another lesson on networking.
2. The teacher should tell the class that today they will learn about networking. The teacher should ask students if they know a definition of networking.
3. The teacher should have all students stand. Students will need room to move around the classroom. The teacher should explain that they are going to take part in a networking activity. Each time the teacher states a hobby, students should move if they like to do the activity. If not, the student should remain standing at their chair.
4. The teacher should then list a wide variety of hobbies (playing sports, watching TV, reading, walking the dog, going to movies, etc.) Students who like the activity should move to a predetermined location in the room. The students should be given 15 seconds to talk with each other. After each activity, allow the students to return to their seats.
5. *After the activity is over, explain that each of those groups was a network. Networks of people are those that interact around a common interest. The teacher may then choose to begin a discussion on communication at this point.* The teacher could ask students how individuals in networks would communicate in the past (Pony Express, letters, telegrams, etc). The teacher should then transition to a discussion of computer networks.
6. The teacher should then ask for examples of different types of computer networks (home network, school networks, work networks, the internet).
7. At this point, the teacher can do a review of hardware and software. What hardware devices are necessary for a computer to join a network? Is software required? A very basic review discussion should occur reminding students of a modem (some may even know the different requirements, dial up-telephone modem, DSL-DSL modem (digital subscriber line), cable access-cable line modem, satellite-satellite adapter) or a router. Also required is an ISP

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(internet service provider), a web browser, and of course, an operating system for the computer. Most networks also require authentication in order to join. Students can be asked for a definition of authentication. How does one go about proving that they are who they say they are in order to join a network (i.e. the school network). Answer: username and password.

8. After this discussion, the students will participate in a very simple unplugged activity that symbolizes a network.
9. Students should be asked to get out of their chairs and form a big circle. The teacher needs a ball of string. The ball of string should be given to one student. The student should say their name and their favorite hobby. The student then holds the string and tosses the ball of string to another student. That student will then say his/her name and favorite activity. This should continue until all students are connected via the string. At the end, students should slowly place their section of string on the ground. All should look at the intricate pattern that was produced. This is similar to a computer network.
10. At this point the teacher may choose to include a discussion on routers/hubs/switches/etc. and other details of how traffic moves. This is not a necessary aspect but could be inserted if the teacher feels comfortable.
11. The teacher can lead a discussion on the positives of everyone having the ability to be connected. The class can also discuss the dangers of being connected. (I.e if one person tugs the string, another may fall). This can lead to a good discussion of being safe on the network. As the network would grow, we have less and less chance of knowing who is connected. Therefore when we join the internet or do anything on a device, we should remember that we don't always know who is on the other end. Be safe with information and be sure you are on a secure network if conducting personal business.
12. The teacher can end with a recap of the history of communication and the ease at which it can happen. (Word of mouth, mail, pony express, telegraph, telephone, radio, TV, etc)
13. If the teacher should choose, this activity can be followed immediately by the activity on ethics and online safety. It is important that students understand both the positive and negative aspects and dangers of being connected to others on the internet.

Assessment/Enrichment:

1. Students can complete an activity at home. Have students determine how many computer networks they use during a day. Have them keep a journal over the weekend. They should list the network and list what actions they complete on each network. For some it may just be two, home and school. However, some may go to church, get on the Wifi or go to the public library to work, or go to the babysitters house after school.
2. On Monday, have students share their activities. This would be a great opportunity to talk very basic safety. What sorts of information can be done on a home or secured network that you wouldn't want to do on a public network (i.e Starbucks). If a public place requires a password to get on their network, does that make it safe? (NO!!)

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