

Saving Peter's Packets
Networking & Positive Uses of Computers

For Middle School Students

Lesson 3: Wildly Wireless

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Teacher Summary

This lesson features a review of servers, routers, and the problem situations in Haiti, India, and Zimbabwe; an introduction to wireless transmissions; and a problem solving challenge.

It should take you and your class about one to two 50-minute class periods to complete this lesson. If you add any of the extra activities or look into the additional resources, you'll need to schedule more time for the lesson.

Objectives

- To increase understanding of how the Internet can be used to help people around the world.
- To help students gain knowledge of how wireless technologies work.
- To help students realize the problems faced by wireless communication.
- To have students work together to solve problems.
- To make learning about how technologies work easy to understand and fun.

ISTE NETS: Standards for Students*

Standard 1: Basic operations and concepts:

- Students demonstrate a sound understanding of the nature and operation of technology systems.
- Students are proficient in the use of technology.

Standard 2: Social, ethical and human issues:

- Students understand the ethical, cultural, and societal issues related to technology.
- Students practice responsible use of technology systems, information, and software.
- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.

Standard 3: Technology productivity tools:

- Students use technology tools to enhance learning, increase productivity, and promote creativity.
- Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.

Standard 4: Technology communications tools:

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.

Standard 5: Technology research tools:

- Students use technology to locate, evaluate, and collect information from a variety of sources.

Standard 6: Technology problem-solving and decision-making tools:

- Students use technology resources for solving problems and making informed decisions.
- Students employ technology in the development of strategies for solving problems in the real world.

* International Society for Technology in Education National Education Technology Standards for Students

Preparations for the lesson

Although parts of the lesson can be completed without high-speed Internet access, to play the Peter Packet game online, students will need to use computers that have high-speed connections. If you do not want students to go online, the game can be downloaded to individual computers. (To download the game, go to the [Peter Packet site](http://www.cisco.com/warp/public/779/edu/peterpacket2/deliverables/funland_play.htm) <http://www.cisco.com/warp/public/779/edu/peterpacket2/deliverables/funland_play.htm>) and select "Download Game." Once the game is on your computer, click "index.html" to play.)

If possible, there should be a computer available to each student. If there aren't enough computers, students in groups may share computers.

You'll need a large world map to use for the conclusion of the lesson.

Become familiar with the wireless content covered in the lesson. The game will provide an excellent background for you and should take you about 5-8 minutes to do the wireless section to the end of the game.

Don't worry. You don't have to be a WiFi (Wireless Fidelity) specialist or a techy guru to teach this lesson. Background information is provided in the Packet Package. You'll master it in minutes.

Lesson Directions:

1. After completing Lessons 1 and 2, your students will be eager to take on the next challenge and finish the game. They should be familiar with the problem situations in Haiti, India, and Zimbabwe and have a basic understanding of servers, packets, viruses, hackers and routers. Ask them how they think wireless fits into all of this, making sure they understand that even though the wireless part is at the end of the game that all packets do not necessarily come in via wireless networking. They should be aware that wireless communication is simply another way that packets can travel.
2. For this mission, divide the class into the same teams as in Lesson 2, but if possible, have one computer available for each team member. Team members can go to individual computers for the game part of the lesson and then return to their groups for their challenge. It is not necessary, however, to have individual computers available.
3. Send your groups out to take on their mission. Send them to their [Mission Assignments](#) <Instructors>Lessons>Unit Packet>Wireless Lesson>Wireless Missions and let them get to work. Remind them to keep their Mission Journals up to date.

4. When the teams have completed their work and brought the messages safely to their destination, bring the class members together and have the teams explain using a world map, how their messages traveled to their destinations and how the following problems were avoided:
 - Interference
 - Viruses
 - Hackers
 - Congestion
 - Distance
5. Explain that the first three lessons combined learning about technologies with learning how technologies can be used to help others, As a forward look to the next lesson, tell your students that they'll be focusing upon human issues in the next lessons. In other words, it's time to take a closer look at their responsibilities as computer users.

Additional Activities

In each of our other Peter Packet Lessons, we offer a number of supplemental activities to enhance learning for your students.

The Wildly Wireless Melodrama

Middle school students love plays and enjoy the opportunity to act them out in the classroom and on stage. We've included a play with a beginning but no end. You can have your students complete it and present it as a class activity, present it for another class in the school, or simply have fun reading it together.

Wireless or Wired?

Using the game and links we've provided, have your students research which—wired or wireless or perhaps a combination — would be better their school, home, and/or a small business.

Where Have All the Lost Packets Gone?

If there are problems along the paths packets take, those packets can be dropped or lost. Have your students write a creative essay or poem about all those lost packets. They might want to add a song to go with it.

Additional Resources

Some sites you or your students may want to visit:

Cybergeography

<<http://www.cybergeography.org/atlas/topology.html>>

Fascinating views of networks in cyberspace.

Hackers

<<http://www.tinhat.com/hackers/index.html>>

Easy to understand hacker info.

How Computer Viruses Work

<<http://computer.howstuffworks.com/virus.htm>>

Gives information and links about types of infection and what they can do to computers.

How Encryption Works

<<http://computer.howstuffworks.com/encryption.htm>>

Concise information describing encryption.

What is Wireless Networking?

<<http://compnetworking.about.com/cs/wireless/f/whatiswireless.htm>>

Concise description with links.

Wireless Facts

<<http://compnetworking.about.com/od/wirelessfaq/>>

Frequently asked questions and answers.

Wireless Images

<<http://www.ittc.ku.edu/wlan/index.shtml>>

Map showing range of wireless on the University of Kansas campus.

Wireless Networking

<<http://computer.howstuffworks.com/wireless-network.htm>>

An introduction to wireless networking.