

Saving Peter's Packets
Lessons for Middle School Students

Lesson 1: Savvy Servers & Plucky Packets

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Teacher Summary

During the lesson students are introduced to Peter Packet through a variety of activities, including information about using computers to help students throughout the world and a fast-moving educational (video-type) game. In the game, your students take on the role of super heroes in the guise of packets, tiny pieces of information that travel through the Internet.

In Lesson 1 they navigate a server and get ready to set out on their Internet mission to help students in Haiti, India and Zimbabwe.

They will only do the server portion of the game with this lesson. You should be able to complete this lesson in one or two 50-minute periods. If you decide to do some of the extras or to look into the resource links, you'll need to schedule additional time to cover the material.

Objectives

- To increase understanding of how the Internet can be used to help people around the world.
- To help students gain knowledge of how servers work and what packets are.
- To help students realize the dangers viruses and hackers pose to computers, computer networks, and their own information.
- 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.

Standard 2: Social, ethical and human issues

- Students understand the ethical, cultural, and societal issues related to technology.

Standard 3: Technology productivity tools

- Students use technology tools to enhance learning, increase productivity, and promote creativity.

Standard 4: Technology Communication Tools (mapping, graphics, and music additional activities.)

- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.

Standard 5: Technology research tools (resource links)

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

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

What You'll Need for This 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 wish, you may download the game to computers ahead of time, thus allowing students to use the game without going on the Internet. (To download the game, go to the Peter Packet site<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 to use both for the game and for other activities in this lesson. If individual computers are not available for use, divide the class into teams or groups.

You'll want to try the game before the lesson so that you will be familiar with the content covered. The game will, in addition, give you a basic understanding of networking. It should take you less than 10 minutes to review the server portion of the game, which includes the introduction, rules for the server part of the game, and information about help missions your students will take on. Doing the entire games takes about 20 minutes.

Don't worry. You don't have to be a networking specialist or a techy guru to teach this lesson. Background information, in considerably less than 400 words, is provided in the Packet Package. You'll master it in minutes.

Lesson Directions:

1. Have students brainstorm why people use computers. You might want to have them list their answers on poster paper, type in as many as they can think of into their computers, or write them on the chalkboard. Because these lists could go on forever, you'll want to limit the discussion to fit your timeframe. Try to keep the brainstorming going on a positive note. You might ask students why we hear more about how people use technology for bad reasons rather than good.
2. See if any students mentioned helping others and explain that in the lesson they are going to use their computers to help students in Haiti, India, or Zimbabwe. Explain that you will be sending them on missions to one of these countries and that the missions will be completed using their computers.
3. Have each student or groups of students create a word processing document called a Mission Journal. Tell them that they will record the details of their mission in the Mission Journal. Dates and times of each entry must be recorded. Entries should include information about the mission assignment, problems faced in carrying out the mission, details on what a packet is, information that is carried by a packet, and anything else you want them to add.
4. Assign missions so that you have about 1/3 of the class working on each country. Send students to their [Mission Assignments](#) <Instructors>Unit Packet> Server Lesson>Server Mission Assignments> to get their instructions.
5. Tell the students you expect them to follow their assignments step-by-step and to report back to you when they have finished the Server segment of the lesson. Emphasize that in the game they'll need to stop after the server section because they'll take on the other parts of the game in future lessons.
6. Depending upon the level of your class, you may want to go over some of the terms (server, packet, virus, hacker, antivirus, network, Internet, QOS, encryption) they'll encounter in the server part of the game. We've provided a concise dictionary of terms that define tech terms in easy-to-understand English. Some classes will not need vocabulary covered, for they'll learn it as they play the game.
7. Give the students time to complete the missions either individually or in groups. Show them where they can access the "Game Cheat Sheet" to help them with successful completion of their assignment.
8. Bring the class back together to do a debriefing for the missions. Discuss what they are doing to help people in Haiti, India, and Zimbabwe; what the Internet is; what a packet is; how servers work; and the problems faced by servers from hackers and viruses.

9. Let your students think in terms of the school's computer equipment and server. Suppose the messages were being sent from your school. Where would the packets be now? That will lead to an introduction to the next lesson, which will tackle how packets are routed through the Internet.

Additional Activities

In each of our Peter Packet Lessons, we offer a number of supplemental activities to enhance learning for your students. If you have the time, and if you'd like your students to delve some more into this topic, try one or more of the activities provided.

Mapping the Internet:

Have your students go back to the diagram of the Internet in the Peter Packet Game. Then have them check out the Internet diagram on How Stuff Works <<http://computer.howstuffworks.com/internet-infrastructure.htm>>. Ask them to think of each student desk or student in your classroom as a server on the Internet. They'll enjoy mapping the classroom by giving desks or students server (or site) names. Then have them add computers that are connected to each server. For example, John might be the Soccer Server and computers connected to his might be players, coaches, referees and so on.

Grasping the Graphics

Have your students go back to the game and look at the graphics used in the introduction. Ask them to interpret the graphics. Then have them create their own graphics that give their impression of the Internet, servers, hackers, viruses, and/or packets.

Making Music

Music from the Peter Packet Game can be downloaded. You'll find that this music is lively and catchy and that your students will enjoy it. We've included the lyrics of the Peter Packet theme in PDF format for you. Some of your students may enjoy performing the song and perhaps adding some more verses. You can download the music by going to: Peter Packet Music <http://www.cisco.com/warp/public/779/edu/peterpacket2/deliverables/funland_download.htm>.

The School Server

Invite the specialist who takes care of the networking operations in your school to visit your class. This person can explain what your school servers do and answer any questions your students may have about servers.

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>>

A concise description of encryption.

Internet Diagram

<<http://www.profitgate.net/webchart.html>>

How the Internet works.

Internet Movie

<<http://research.lumeta.com/ches/map/movie.mpeg>>

An interesting movie demonstrating the growth of the Internet.

Mapping the Internet:

<<http://computer.howstuffworks.com/internet-infrastructure.htm>>

An excellent diagram featuring routers and servers.

What is the Internet?

<<http://www.centerspan.org/tutorial/net.htm>>

A tutorial that includes how the Internet works.

What is a Packet?

<<http://computer.howstuffworks.com/question525.htm>>

A detailed, but easy to understand description of packets.