LESSON 1—INTRODUCTION TO NETWORKING

OBJECTIVES
- Define a computer network.
- List the four purposes of a network.
- Explain the elements of communication.
- List and describe the two types of networks.

LECTURE NOTES
TEACHING MATERIALS
- Learner text
- PowerPoint presentation from the **PowerPoint Presentations/Unit01/Lesson01** folder on the *Instructor Resources* CD-ROM
- ExamView questions from the **ExamView** folder on the *Instructor Resources* CD-ROM

PREPARE
- Go over the lesson objectives with students.
- Set up a projection system to run the PowerPoint presentation for the lesson, if desired.

TEACH
Begin by asking learners about the computer networks that they have come in contact with in the last 2 days. Examples such as the campus network, Internet, banks, utility companies, and retail stores will immediately come to mind. Ask how many learners might even have a network at home. Emphasize that networks are everywhere today and that they play a key role in our everyday lives.

It is important that learners can define what a network is. You may want to ask them for definitions of a network or have them do research (if located in a computer lab connected to the Internet) to come up with the definition of a network. The answers may surprise you; computer networks are often described in technical detail that only obscure the true meaning of a network. The key to the definition of a network is to relate it to a *net*. You may even want to bring in a small net and stress that the interconnectivity of the pieces of rope or twine are the key: the sum is greater than its parts. Connect this to a computer network, and help learners see that a network at its base level is individual computers that are connected together.

There is a wide variety of software that networks allow users to share. Ensure that learners understand the difference between application software and utility software, as well as the difference between an application program and the data file that a program produces. To show the cost savings in sharing hardware, ask one group of learners to price a computer lab that has 100 computers that each has its own printer, and then have another group research the cost of 100 computers, 1 printer, and a network.   If possible, you should demonstrate the different types of groupware such as e-mail, electronic calendars, and collaborative writing software. Ask your learners how these types of software could be used at your school to improve communications.

Learners may have some difficulty understanding the different types of networks because they overlap. You may want to spend more time on this topic to be sure that they come away with a clear understanding. Asking them to classify the computer network in your school in regard to controller function and distance may be helpful.

Troubleshooting Tips
It is common to think of a computer network in technological jargon that is difficult to grasp. Help learners see that a computer network is a set of devices that are connected together in order to share their resources. It may be good to consider a variety of networks (school, Internet, banks, etc.) and list the devices and what

they share. Whether the network is large or small or contained in one room or spread around the world, the basic definition will remain the same.

The Internet is a tremendous resource and should be used extensively with this textbook. If learners are not comfortable with using the Internet, you may want to look at the activities in Lesson 10, which cover some of the basic Internet tools that learners can use. Particularly focus on search engines, and help them learn how to create intelligent search criteria. Entering "networks" in a search engine will result in far too many matches to be meaningful, but entering "peer-to-peer network hardware" lets the search engine narrow down the responses.

Quick Quiz
1. Computer programs such as word processors, spreadsheets, databases, and presentation packages are examples of _____ software. **Answer:** application
2. List some examples of computer hardware that can be shared across a network. **Answer:** printers, fax machines, scanners, modems, hard disk drives, CD-ROM drives, and DVD drives
3. _____ software allows different users to add their own revisions, suggestions, and comments to a single common document. **Answer:** Collaborative writing
4. The communication that takes place between devices on a computer network is known as _____. **Answer:** telecommunications
5. A peer-to-peer network is sometimes called a(n) _____. **Answer:** workgroup

CLOSE
Go over the summary points and answer the questions about the material covered in this lesson.

Discussion Question
Computer networks have made the illegal distribution of software, known as piracy, much easier. Software vendors claim that they lose enormous sums of money because of piracy. Users counter that, as the software is more widely distributed, more users will end up buying the software. What do you think? Should users be able to freely distribute software? Or should software be "crippled" so that it only functions on the computer of the person who purchased it?

ASSESS
Key Terms

Application server	Log in
Application software	Mail servers
Backups	Megabits (Mbps)
Carrier	Microcomputer
Clients	Network manager
Client-server networks	P2P
Collaborative writing	Peer-to-peer network
Communications servers	Personal computer (PC)
Computer network	Print and file server
Directory services servers	Server-based network
Electronic calendars	Servers
E-mail	Storage-area network (SAN)
Fax servers	Telecommunications
Gigabits (Gbps)	Utility software
Groupware	Video conferencing
Kilobits (Kbps)	Wide area network (WAN)
Local area network (LAN)	Workgroup

Projects to Assign

Project 1-1 is a good opportunity for learners to listen to a real, live network manager! Not only can they gain information about the school's network, but they also can begin to see exactly what they do. Also, let the network manager talk to the learners about restrictions on the network and what they can and cannot do. Project 1-2 is best assigned after a discussion about the types of networks available. You may want to make this a group project. Project 1-3 covers storage area networks (SAN) and requires additional research. Learners who are unfamiliar with networks may have to spend more time on this topic than those who are already familiar with networks. Depending upon the makeup of the class, this may be a good extra credit project for those who want to learn more. The Critical Thinking Activity instructs learners to do research about P2P networks and write a report on their findings.