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Computer Networks

WebQuest Description: This WebQuest allows the user to understand the basic terms associated with computer networks.
Grade Level: 9-12
Curriculum: Technology
Keywords: Networks,LAN,MAN, WAN,simplex,duplex,half-duplex, and network topologies.
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Introduction

Technology is on the rise today.   As a result there are a variety of jobs in the area of technology.   Two such jobs are computer network specialists and computer systems administrators.   Some Facts About   Computer Network Specialists   and Computer Systems Administrators   Computer network specialists and computer systems administrators are responsible for the daily operations of an organization's computer networks. They organize, install, and manage an organization's computer systems, including local area networks (LANs), wide area networks (WANs), network segments, intranets, and other data communication systems.   Network and computer systems administrators work with the physical computer networks of various organizations and therefore are employed in many industries.Network and computer systems administrators must often have a bachelor's degree, along with related work experience.The average annual wage of a computer network and computer systems administrators was $69,160 (U.S. dollars)   in May 2010.So, what are some basic facts that a computer network specialist and a computer system administrator would need to know?

Tasks

1.   By the end of this WebQuest you should be able to:Define the term computer network.Describe the main types of networks: LAN, MAN, and WAN.Explain the differences between simplex,duplex and half duplex lines.Classify commonly used technological devices as either simplex, duplex, or half duplex.

Process

Students, please form groups of three.Bellow are a series of tasks that each group needs to complete. Start with the first one and then continue with the rest. You will need your Computer Networks Journal to complete your tasks. Don't forget it, and have fun!Task 1:   Data Communications and the types of NetworksIn your first task   you will watch a watch a video to learn The purpose of a computer network The three types of computer networksAt least one feature of each type of network Click on the Link Computer Networks Video.   The video will help you to answer the questions in section ONE of your Computer Networks Journal.Task 2:   Types of Network Layout (Topology)In the next task you will watch a series of short videos to help you learn The types of layouts of computer networksThe physical appearance of the various network layoutsClick on the Link Network Topology Video.   The video will help you to answer the questions in section Two of your Computer Networks Journal.Task 3:   Direction of Data Flow in a Network (Transmission Lines)In the next task you will learn the three ways in which data can flow in a network.   Click on the Link Data Communication.   This will help you to answer the questions in section Three of your Computer Networks   Journal.Click on the Link What is simplex, duplex and half duplex transmission?   This will further assist you in understanding the three ways in which data can flow in a computer network.Task 4:   A Short QuizIn the next task you will take a short quiz to see if understand what you have been doing so far.   Have fun!Click on the link Computer Networks Quiz.Task 5:   A PowerPoint PresentationIn your final task you will create a PowerPoint presentation that will provide an overview of the information learned in today's class (You may find the information written in your Computer Networks Journal useful in preparing your presentation)Your PowerPoint presentation must answer the following questions:What is a computer network?What is at least ONE advantage of networking computers?What is at least ONE resource that can be shared between computers in a network?(a) What are the THREE types of computer networks? (b)How do they differ from each other?(a) What are the THREE types of   network topologies? (b) How do they differ from each other?(a) Explain simplex, duplex, and half duplex transmission? (b) Give at least one example of each (the examples should NOT be ones discovered during the WebQuest).Please note that your PowerPoint presentation should not contain more than ten slides.   All presentations made should be at most 10 minutes.

Evaluation

Your PowerPoint presentation will be evaluated by the criteria below. Please make every effort to obtain maximum scores in each category.   Hope you have fun while preparing your presentation.   &

nbsp;   PowerPoint Rubric   CATEGORY   Excellent-4   Good-3   Satisfactory-2   Needs Improvement-1   Content - Accuracy   All content throughout the presentation is accurate. There are no factual errors.   Most of the content is accurate but there is one piece of information that seems inaccurate.   The content is generally accurate, but one piece of information is clearly inaccurate.   Content confusing or contains more than one factual error.   Sequencing of Information   Information is organized in a clear, logical way. It is easy to anticipate the next slide.   Most information is organized in a clear, logical way. One slide or piece of information seems out of place.   Some information is logically sequenced. An occasional slide or piece of information seems out of place.   There is no clear plan for the organization of information.   Effectiveness   Project includes all material needed to give a good overall understanding of the topic.   Project is lacking one or two key elements.   Project is missing more than two key elements.   Project is lacking several key elements and has inaccuracies. .   Use of Graphics   All graphics are attractive and support the topic of the presentation.   A few graphics are not attractive but all support the topic of the presentation.   All graphics are attractive but a few do not support the topic of the presentation.   Several graphics are unattractive AND detract from the content of the presentation.   Text - Font Choice & Formatting   Font formats (color, bold, italic) have been carefully planned to enhance readability and content.   Font formats have been carefully planned to enhance readability.   Font formatting has been carefully planned to complement the content. It may be a little hard to read.   Font formatting makes it very difficult to read the material.   Spelling and Grammar   Presentation has no misspellings or grammatical errors.   Presentation has 1-2 misspellings, but no grammatical errors.   Presentation has 1-2 grammatical errors but no misspellings.   Presentation has more than 2 grammatical and/or spelling errors.   Delivery   Group members spoke at a good rate, volume and with good grammar. They maintained eye-contact while using, but not reading their notes.   Group members spoke a little faster or slower than necessary, or too quietly or loudly. They used acceptable grammar. They maintained eye-contact, but relied too much on their notes.   Group members spoke at a good rate and volume, but used poor grammar. They relied heavily on their notes.   Group members paid little attention to rate, volume or grammar. They read nearly word for word from notes.   TOTAL:28 MARKS

Category and Score					Score
				Total Score	

Conclusion

Congratulations! You have just completed your introductory research on Computer Networks. You have learned about the types of computer networks,the various types of network layouts, and the various ways that data can flow in a network. You use computers that are networked everyday. Before today's WebQuest, how many of you were familiar with the terms researched in today's lesson? You have only scratched the surface of the topic Computer Networks. Please dig deeper into this topic, you might be surprised at what you find. You may even decide to become a computer network specialist one day! Consider the following questions as you broaden your knowledge of Computer Networks:How do satellite work?How do cellular phones operate?What are the two ways in which networks can be connected?How are microwaves and infrared used in networking?

Teacher Page

Fellow teachers, we know what our lives would be without computer networks. People can only communicate with each other using the phone when they are
away from one another. Sharing a printer between many computers would be
difficult as printer cable must be attached to the computer which
requires printing. Removable secondary media such as memory keys must be used to share files or to transfer files from one PC to
another PC. Due to these difficulties, we need to have computer networking. Sharing of resources and enhancing communication are two main advantages
 of using computer networks. Our students use computer networks daily. However, many of them probably have never given thought to what computer networks entail, but they need to know.This WebQuest introduces students to the basics of computer networks, and may perhaps build in them the desire to work in the field of computer networking one day. The videos and other resources provided will not only help them to understand the topic, but it will also allow them to have fun during the lesson!
Standards

Credits
The following websites were used in preparing this WebQuest:

1)http://www.simplyhired.com/a/salary/search/q-computer+network+specialist
2)http://www.bls.gov/ooh/Computer-and-Information-Technology/Network-and-computer-systems-administrators.htm
3)http://discover.education.purdue.edu/challenge/PBL/2002_2003/ENL_Progress/PPPrubric.htm

All websites can be accessed by clicking on the links below.
Other