

Part

1

COMPUMENTOR

Apprenticeship Toolkit

Trainer's Manual

COMPUMENTOR

Apprenticeship Toolkit Trainer's Manual

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CompuMentor's Apprenticeship Toolkit

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This is the "Version 1" of the "Apprenticeship Toolkit." We are providing this toolkit in the hope that your organization will use it, test it and provide us feedback on how useful it is to you in designing or running your job training program. Based on that feedback we will update this toolkit and make it an even better resource. New resources will be added and changes will be made based on your thoughts and ideas. Please take a moment after reviewing and using this toolkit to complete our BRIEF evaluation and send it back our way. Your feedback is critical to making this toolkit a helpful resource for NPOs.

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Introduction

CompuMentor

CompuMentor is one of the nation's leading nonprofit technology assistance organizations. We have been providing person-to-person services, low-cost software and online resources to more than 23,000 nonprofits and schools since 1987. We are a nonprofit based in San Francisco.

Our services began with our mentor matching program, which matches technical volunteers with organizations to work on small technology projects. As the need for technology assistance has grown in the nonprofit sector, so have our offerings. Our strategic consulting program includes technology planning for small and mid-size nonprofits and long term, larger scale projects such as database development. We also consult with community technology centers and schools in low-income communities.

In May 2000, CompuMentor launched TechSoup.org. We created this free Web site to share our technology expertise with nonprofits in simple, friendly language. Now organizations have an online resource specifically addressing the technology needs of the nonprofit sector.

Our DiscounTech program, the discount technology store for nonprofits, offers nonprofits essential technology products at the best possible prices. Leading technology providers have generously donated their products to help us create this new resource. With DiscounTech, we can now offer nonprofits even more technology solutions to achieve their missions.

Our Work with Community Technology Centers

CompuMentor offers expertise, guidance and training to nonprofit organizations and schools interested in developing a Community Technology Center (CTC). A CTC is a small computer lab providing access and training tailored to the specific needs of a low-income or disadvantaged community.

We have six years of experience helping CTCs in diverse settings. In addition to consulting with individual centers, we provide training and develop resources for large CTC initiatives including PowerUP (www.powerup.org) and the Department of Education's America Connects Consortium.

America Connects Consortium

The America Connects Consortium (ACC) provides technical assistance, training, regional development, and other services to the nation's community technology centers. ACC is a collaboration of eight partner organizations, led by Education Development Center. ACC is funded under a contract with the US Department of Education, Office of Vocational and Adult Education, with additional matching funding and in-kind support from a variety of sources. Each ACC partner provides specialized services for community technology centers based on its areas of interest and expertise. These include education, literacy, workforce development, technology assistance, non-profit management, public-private collaboration, and technologies for people with disabilities. Besides EDC, the partners are the Alliance for Nonprofit Management, the Alliance for Technology Access, CTCNet, Compumentor, ICF Consulting, the Information Technology Association of America, and the National Alliance of Business.

About the Apprenticeship Toolkit

Who is it for?

The Toolkit was developed for CompuMentor's Apprentice Program and is being shared with CTCs who are interested in teaching their students basic Systems Administration. It does not include all that you need to know about all of the tasks related to Systems Administration, but provides a solid foundation of best practices in this area.

What Is Included In The Toolkit?

This toolkit was designed to complement and enrich Apprentices knowledge about desktop support and System Administration. The training utilizes an experiential and hands-on approach to learning. Each week's lesson highlights a skill or task that most Systems Administrators will be asked to do if they are managing a lab. The expectation is that the student then will apply this learning at their host site under the supervision of the site supervisor.

Manual # 1 Apprentice Manual – This manual is for students participating in your Apprenticeship Program. It provides an overview of each week’s lessons, along with links and resources related to the skills taught each week. It corresponds with the Trainer’s Manual

Manual #2 Trainers Manual – If you are interested in delivering a series of workshops and lessons in basic systems administration this Manual can help. The manual provides lesson plans, along with links and resources related to each week’s topics. This manual was developed with the expectation that the individual who will be teaching the course is well versed in Systems Administration in is proficient in the tasks outlined in this Manual. Ideally it would also be helpful if the Trainer has some past experience as a teacher!

Manual #3 Resource Guide – This is a companion guide for topics covered in the training manuals. It contains resources, web links and references for Systems Administration tasks, as well as provides information related to securing employment in the Information Technology field.

For Trainers

Our expectation is that trainers who use this curriculum will “take what they need and leave the rest.” You are welcome to use the materials contained in this toolkit in their entirety, or just access information that is most relevant to the students you are teaching.

We strongly suggest that the instructor who teaches this curriculum be well versed in Systems Administration and can both do the work, as well as explain how to do it to others!

Lesson Plans

Each lesson includes an introductory activity, questions from the previous week, and the lesson of the week. The introductory activity will help the Apprentices to feel more comfortable in the class and will allow both Apprentices and instructors to get to know more about each other. This will be followed by the questions about the previous week's lesson. Finally, the lesson of the week will be taught. Lessons include:

- Overview
- Introductory activity
- Questions from the previous week
- Lesson of the week
 - The lesson name
 - Concept
 - Objectives
 - Materials needed
 - Time required
 - Background information
 - Procedure
 - Discussion
- Resources
- Weekly assignments

Learning Outcomes

The goal of this program is to provide entry level Systems Administrators with the “core competencies” needed to establish and manage a small computer laboratory. After students complete their apprenticeship and this course they should be able to:

1. Document an existing network
2. Set up maintenance schedules
3. Use utilities and other tools to maximize computer efficiency
4. Install and configure antivirus software
5. Use DOS commands
6. Set up peer-to-peer networks
7. Troubleshoot networking and printing problems
8. Set up a back-up system and recover data

Lesson Summary

Week 1	Orientation To Program/Intro To Tech Tasks
Week 2	Virus Detection and Repair
Week 3	Utilities and Maintenance for Windows
Week 4	Utilities and Maintenance for Macintosh
Week 5	Problem Solving and Brainstorm
Week 6	Networking PCs
Week 7	Networking Macintoshes
Week 8	Printing and Peripherals
Week 9	System Back-up Procedure
Week 10	Troubleshooting Tips
Week 11	Review
Week 12	Job Search

Apprenticeship Program - Overview Week 1

Orientation Resources and Worksheets

Worksheets and Resources



Worksheets



Technology People Hunt



Documentation



Technology Timeline



Resources



Mission and Goals



PC Assessment



Finding Application Version



NT Diagnostics



Macintosh Assessment

Overview Of The Week

1. Introductions
2. Review apprenticeship project goals, objectives and expectations
3. Provide overview of training curriculum
4. Review history and overview of Community Technology Centers (CTCs)
5. Review NPOs, who they are, what they do
6. Review training materials and resources
7. Review tasks and deliverables for apprenticeship
8. Review Documentation Worksheet
9. Review items to be gathered and included in the lab documentation
10. Review how to find that information
11. Review products/deliverables for next week

Activities/ Time

- Introductions and coffee 10 minutes
- Technology people hunt 15 minutes
- Introduction to CompuMentor 10 minutes
- Introduction to CTCs 15 minutes
- Introduction to Apprenticeship Program 10 minutes
- Review of apprenticeship materials 20 minutes
- ***Break*** 15 minutes
- Technology timeline lesson 20 minutes
- Mission and goals lesson 15 minutes
- Hardware assessment lesson 90 minutes
- ***Lunch*** 30 minutes
- Network assessment lesson 90 minutes
- Anti-Virus lesson 90 minutes
- ***Break*** 15 minutes
- Weekly assignment 10 minutes
- Questions and answers 20 minutes

Resources:

<http://www.tgci.com/publications/98fall/MissionStatement.html>

<http://www.uiuc.edu/ro/NPS/> (sample Mission Statement)

<http://www.belarc.com/> (tool to download)

<http://webopedia.internet.com/TERM/h/hardware.html> (hardware definitions)

Weekly Assignments:

- Review the mission, goal and purpose of the organization
- Review and prioritize tasks with site supervisor
- Introduction to key staff and, where appropriate, students
- Review materials and lab resources
- Review items to be gathered and included in the lab documentation
- Review how to find that information
- Begin journal of accomplishments, questions, and problems regarding work at CTC
- Begin documentation of the network

Apprenticeship Program - Week 1

Introductory Activity

Technology People Hunt

Worksheets and Resources

 **Worksheets**
Technology
People Hunt

Concept:

Getting to know your colleagues.

Objective:

Apprentices will learn about each other and their instructors.

Materials:

People Hunt Worksheets, pencils.

Time required: 30 minutes.

Background: This activity will allow Apprentices and instructors to get to know each other a little better and also create a more relaxed atmosphere.

Procedure:

1. Give one-third of the Apprentices worksheet 1, one-third worksheet 2 and one-third worksheet 3.
2. Have Apprentices circulate around the room, stopping to introduce themselves and ask other people in the room the questions on the worksheets.
3. Have Apprentices write the name of the person who can answer the question and also find out a little more about the answer or about the person.
4. After 10-15 minutes have Apprentices sit down.
5. Ask if anyone did not find a person to answer one of the questions.
6. Then ask the group if anyone could have answered that question.

Discussion:

How many questions were you able to get answered? Did you learn anything about someone that you did not know before?





Adapted from "People Hunt" by Jeanne Gibbs, *Tribes A New Way of Learning Together*, TLC and Center Source Publications.

Apprenticeship Program - Week 1

Lesson

Mission and Goals

Worksheets and Resources

-  **Worksheet**
-  Documentation
Worksheet
-  **Resource**
-  Mission and Goals

Concept:

Nonprofits can better serve the community with a clear a mission and goals.

Objective:

Apprentices will learn to identify the mission, goal and purpose of their organization.

Materials:

Documentation Worksheet Mission, NPS resource.

Time required: 30 minutes.

Background: A mission statement is a short, descriptive statement of the common objective and focus of the organization.

At the very least, an organization's mission statement should answer three key questions:

1. What is the purpose of the organization?
2. What is the business of the organization?
3. What principles or beliefs guide the work? (The values of the organization.)

Activity:

Procedure:

1. Distribute the Documentation Worksheet.
2. Review the contents as they relate to the Mission of the Organization.
3. Describe mission and goals.
4. Hand out samples of mission and goals.
5. Questions and discussion.

Discussion:

Have you ever read a company or agency's mission and goals before? Who do you think is involved with creating the mission and goals of an organization? How will an organization's mission and goals affect you? How is the technology team affected by the organization's mission?

Reflection:

Were you surprised at how much/little is included in the Mission Statement?

Resources:

<http://www.tgci.com/publications/98fall/MissionStatement.html>

Apprenticeship Program - Week 1

Activity

Technology Timeline

Worksheets and Resources

 *Worksheet*

 Technology

Timeline

Worksheets 1-3

Concept:

Time is relative to the speed of the Internet.

Objective:

Apprentices will learn about the history of Information Technology.

Materials:

- Chalk board and Chalk, or Butcher Paper and Pens.
- Technology Timeline.

Time required: 20 minutes.

Procedure:

1. Prepare a chalk board or have butcher paper taped up on one of the walls.
2. Hand out timelines to Apprentices. Tell them they have 5 minutes to review the timelines.
3. After reviewing the handouts, Apprentices are to find and record important benchmarks on our Technology Timeline (i.e., 1969 ARPANET, man on the moon).
4. Apprentices can add some personal benchmarks (i.e., Dec 1999 MCSE completed).

Discussion:


How does Technology affect our lives? What are some positive effects? Negative? How can we balance these effects? What do you think are future technological benchmarks and when do you expect them to happen? Does technology force you to do things differently at work and in your personal life? Are we forced to move at a speed that is seemingly out of control?


Apprenticeship Program - Week 1





Lesson

PC Assessment

Worksheets and Resources

 **Worksheet**
Documentation Worksheet

 **Resources**

-  PC Assessment
-  Finding Application Versions
-  NT Diagnostic
-  Macintosh Assessment

Activity:

Document the Lab.

Concept:

Being able to identify computer hardware is a crucial part of maintaining and troubleshooting it.

Objective:

Apprentices will learn:

1. How to assess the computer hardware.
2. How to use Windows 9x and 2000 to find out hardware information.
3. How to document hardware information.

Materials:

Technology Assessment Worksheet, PC and Mac Handouts, MSD handout, laptop and projector.

Time required: 60 minutes.

Background: It is important to know the configuration of your computers. With this information you can determine the capabilities of the system changes. If available, you can refer to the owner's manual for the technical specifications. If you are also involved in the maintenance of the network you should keep a journal on each system (write down the make, model and serial number of each PC). What type of computer do you have? How much RAM? What is the total size of your hard drive? How much free hard disk space? What is the operating system and what version? This activity will assist you in finding out these important configurations.

Procedure:

1. Review the Technology Assessment Worksheet.
2. Review the PC hardware and Mac Handouts.
3. Review with projector and computer to show Apprentices how to find the information.
4. Tell Apprentices that it is important not only to fill out the Technology Assessment Worksheet, but that they should keep journal.
5. At the front of your journal, write down the make, model and serial number of each PC.
6. Inform Apprentices that this journal will assist them not only with the lab, but also later when writing their resumes. This will help Apprentices to remember everything that they did on the job.

Discussion:

Do you feel confident that you can find and document the hardware information? Which systems are you more familiar with? Do you feel that the handouts give you enough information?

Reflection:

Were you surprised at how much information you need to know?

Resources:

<http://www.belarc.com/> (tool to download)

<http://www.ebase.org/services/techatlas.htm> (tool to download)

<http://webopedia.internet.com/TERM/h/hardware.html>

Weekly Assignments:




- Review the mission, goal and purpose of the organization
- Review and prioritize tasks with site supervisor
- Introduction to key staff and, where appropriate, Apprentices
- Review materials and lab resources
- Review items to be gathered and included in the lab documentation
- Review how to find that information
- Begin documentation of the network

Apprenticeship Program - Overview Week 2

Virus Detection and Repair

Worksheets and Resources

Resources

-  FAQs about Viruses
-  Working with Norton AntiVirus
-  Next steps: Ongoing Virus Protection For Norton AntiVirus
-  Network Install Suggestions

Overview of week

1. Previous week's questions.
2. Review items gathered and included in the lab documentation.
3. Review how to load and run virus detection software.
4. Review agency tasks to be completed and a timeline for completion.

Activities/ Time

- | | |
|-----------------------------|---------|
| • Introductory Activity | 10 mins |
| • Previous week's questions | 15 mins |
| • Lesson | 60 mins |
| • Weekly assignment | 15 mins |
| • Questions and answers | 20 mins |

Previous Week's Questions

- How was your first site visit?
- Did the agencies have their Mission and Goals available for you?
- Were you able to get the hardware configurations for the labs?
- Did you encounter any problems?






Apprenticeship Program - Week 2

Lesson

Virus Detection and Repair

Worksheets and Resources

Resources

-  Computer Virus Fact Sheets
-  Virus FAQs
-  Working with Norton AntiVirus
-  Network Install Suggestions
-  Next steps: Ongoing Virus Protection For Norton AntiVirus

Concept:

Computer viruses are problems the work world.

Objective:

Apprentices will learn:

1. How to install antivirus software
2. How to schedule scans
3. How to configure for live updates
4. How to research viruses
5. How to remove viruses

Materials:

Virus installation guides for Macintosh and Windows, computer virus fact sheet, projector and laptop, antivirus software.

Time required: 60 minutes.

Background: The number of known viruses surpassed 50,000 in August 2000. A large majority of those (74%) are parasitic viruses (attacking executables), second are macro viruses (19%) and 7% are boot sector viruses.

The **Symantec AntiVirus Research Center (SARC)** estimates that there are three new viruses written every day. Bad things can happen to your computer if it becomes infected, and your chance of recovery is highly dependent on the protection and precaution procedures you have in place. Damage can be done to data and a considerable time can be spent finding a cure for the little bugs.

Procedure:

1. Pass out the Virus Detection Information Packet.
2. Macintosh Installation Guide and Windows Installation Guides.
3. Discuss how viruses get around i.e., through the internet, floppy disks, email attachments.
4. Discuss types of viruses. Go over the Computer Virus Fact Sheet.
5. Discuss the importance of loading the software, scheduling scans and configuring live updates.
6. Demonstrate how to do this using laptop and projector.

Discussion:

Have you ever experienced a virus on your computer? How did you deal with it? What are some of the types of viruses that you know of? How do they affect the computer?

Reflection:

Were you surprised at how many viruses there are and the type of damage that they do?

Resources:

<http://www.symantec.com/>

<http://www.mcafee.com/>

http://www.mcafee.com/anti-virus/virus_glossary.asp?

<http://www.europe.datafellows.com/news/hoax.htm>

<http://hoaxbusters.ciac.org/>

<http://pages.prodigy.com/virushelp/>

<http://www.symantec.com/avcenter/index.html>

<http://www.virusbtn.com/>

<http://sophos.com/search/index.cgi>

<http://www.sophos.com/virusinfo/whitepapers/prevention.html>(for general virus info)

<http://sophos.com/virusinfo/explained/schools.html> (for school specific information)




Weekly Assignments:

- Review items to be gathered and included in the lab documentation.
- Review how to find the information.
- Review how to load and run virus detection software.
- Document apprenticeship tasks to be completed, including specific tasks outside this curriculum, and a timeline for completion.

Apprenticeship Program - Overview Week 3

Windows Maintenance

Worksheets and Resources

-  **Resources**
-  Norton Utilities for PC
-  Preventing Trouble through Regular Maintenance

Overview of week

1. Introductory activity – What’s in a name?
2. Previous week’s questions.
3. Submit and review completed documentation and journal.
4. Discuss issues and success in running virus detection software.
5. Review how to run system utility program.

Materials:

Virus installation guides for Macintosh and Windows, computer virus fact sheet, projector and laptop, antivirus software.

Activities/Time

- | | |
|-----------------------------|------------|
| • Introduction Activity | 30 minutes |
| • Previous Week’s Questions | 10 minutes |
| • Lesson | 60 minutes |
| • Weekly Assignment | 10 minutes |
| • Questions and Answers | 10 minutes |

Introductory Activity

The question of the day:

What's in a name? (See lesson titled "What's in a name.")

Previous Week's Questions

- Does your agency already have antivirus protection? If so, what are they using and how (i.e., is it on all the machines or only some; desktop versions or server versions)?
- Did you get to install the antivirus software? If not, why not?
- Did the computers meet the requirements for installation?
- Did you schedule the scans? Live Updates? When did the agency say was the best time?
- Did you find any viruses? Which ones? Were they easy to eradicate? If not what did you have to do?
- How is your site working out for you?
- Are you having any particular difficulties? If so, what are they?
- Did you encounter any problems?

Apprenticeship Program - Week 3

Introductory Activity

What's in a name?

Concept:

Getting to know your colleagues.

Objective:

Apprentices will learn more about each other and the instructors.

Materials:

None.

Background: Names are important to us. There are many things that we think of when it comes to names. Why did parents choose the name? Were you named after someone? Do you have a nickname? Do people like their names? If not, did they change or give themselves their own name?

Time required: 30 minutes

Procedure:

1. Apprentices will be asked tell everyone in the room something about their name.
2. Instructor will begin by saying their name and something they like about it or how they go their name, or what their name means.

Discussion:

What kinds of things did you learn about each other? Did you remember something about yourself from this activity? If you could change your name what might you choose?




The questions are adapted from the "People Hunt" activity by Jeanne Gibbs, *Tribes A New Way of Learning Together*, TLC and Center Source Publications.

Apprenticeship Program - Week 3

Lesson

PC Utilities and Computer Maintenance

Worksheets and Resources

-  **Resources**
-  Norton Utilities for PC
-  Preventing Trouble through Regular Maintenance

Concept:

Maintaining computer systems is good practice.

Objective:

Apprentices will learn:

1. How to maintain a PC routinely.
2. How to run Scan Disk.
3. How to clean sweep unnecessary files.
4. How to run defrag.
5. How to find and use Utilities software (such as Norton Utilities).

Materials:

Regular Windows Housekeeping Tasks, laptop and projector.

Time required: 60 minutes.

Background: Proper care of your PC will prolong its useful life. These resources offer tips and tricks for keeping your computer healthy and extending the life of your PC and its components. Establish a regular maintenance schedule. Just like brushing your teeth regularly to avoid cavities, you can minimize computer problems by keeping your PC on a regular preventive maintenance program.

Procedure:

1. Pass out “Regular Win 95/98 Housekeeping Tasks” sheet.
2. Review the importance of having Maintenance Schedule and following it.
3. Demonstrate how to use Scandisk, Defrag.
4. Demonstrate how to clean up the disk.
5. Show Apprentices where to find utilities and information on the Internet.

Discussion:

What kinds of utilities can be used to tune up a PC? Why is it important to defrag the hard drive? How do you clean the hard drive of unnecessary files? What other tools can you use? (Norton)

Reflection:

Were you surprised that there are built-in tools for Microsoft? Were you surprised at how many temporary files are on the hard drive?

Resources:

http://www.micromat.com/techTool_Lite/index_techTool.html

<http://www.zdnet.com/zdhelp/filters/subfilter/0,7212,6002606,00.html>

<http://www.zdnet.com/zdhelp/stories/main/0,5594,2230287,00.html>

<http://www.hardwarecentral.com/hardwarecentral/tutorials/76/1/>

<http://www.pcmec.com>

- freeing up disk space
- system care


Weekly Assignments:


- Submit to supervisor and review completed documentation.
- Review/update supervisor on status of their project(s).
- Set up a maintenance schedule.
- Review how to run system utility program.
- Address agency tasks/priorities.
- Journal activities.


Apprenticeship Program - Overview Week 4

Macintosh Maintenance

Worksheets and Resources

 **Resources**

 Macintosh Maintenance Checklist

 Macintosh Systems Maintenance Tasks

Overview of week

1. Introductory activity.
2. Previous week questions.
3. Review maintenance schedule.
4. Review Macintosh utilities.
5. Review how to run system utility programs.
6. Review resources.
7. Journal activities.

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Introductory Activity

The question of the day:

What pressing issues have come up on site?

Previous Week Questions




- Were you able to set up your documentation?
- What kinds of problems did you have in the lab?
- Were you able to begin the maintenance on the lab? Scandisk? Cleanup? Defrag? Norton Utilities?
- Did you have to go online to find out about problems that occurred? What did you discover?
- Did you learn anything new that you can share with the rest of us?

Apprenticeship Program - Week 4

Lesson

Utilities and Maintenance for Macintosh

Worksheets and Resources

-  **Resources**
-  Macintosh Maintenance Checklist
-  Macintosh Systems Maintenance Tasks

Concept:

Maintaining computer systems is good practice.

Objective:

Apprentices will learn:

1. How to find utilities for the Macintosh.
2. How to follow a maintenance schedule.
3. How to run Disk Repair, rebuild the Desktop, set PRAM, perform a clean install.

Materials:

Macintosh Systems Utilities Information Sheets, laptop with Macintosh OS, projector.

Time required: 60 minutes.

Background: Proper care of your Mac will prolong its useful life. These resources offer tips and tricks for keeping your computer healthy and extending the life of your Mac and its components. Just as with a PC, you can minimize computer problems by keeping your MAC on a regular preventive maintenance program.

Procedure:

1. Pass out the Macintosh Systems Utilities Information Sheets.
2. Review the importance of having a maintenance schedule.
3. Demonstrate how to use Disk Repair, Rebuild Desktop, Reset PRAM.
4. Demonstrate how to do a clean install.
5. Show Apprentices where to find utilities and information on the Internet.

Discussion:

How do you rebuild the Mac Desktop? Reset PRAM? What does PRAM stand for? When do you schedule the maintenance items? What are the differences between Mac and PC?

Resources:

<http://www.zdnet.com/zdhelp/filters/subfilter/0,7212,6002606,00.html>

(Macintosh)

<http://www.alsoft.com/> (Macintosh – Disk Warrior)

http://opcenter.cso.uiuc.edu/nas//nash/mac/mac_glossary.html

<http://opcenter.cso.uiuc.edu/nas//nash/index.html> (network admin handbook)

<http://www.macaddict.com/osx/> (for OSX)

Weekly Assignments:

- Identify and agree on computer maintenance projects that you will address.
- Discuss/demo how you will run a utilities program on all lab computers.
- Establish a trouble log for each computer in the lab.
- Review the trouble log with supervisor.
- Journal activities.

Apprenticeship Program - Overview Week 5

Problem Solving and Brainstorming

Overview of week

1. Introductory Activity.
2. Previous week's questions.
3. Discuss issues being addressed at work sites.
4. Discuss troubleshooting resources and techniques.
5. Discuss problems and solutions found.
6. Brainstorm solutions for unsolved problems.
7. Submit and review trouble log for each computer in the lab.

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Introductory Activity

The question of the day:

What is one success you had this week at your site?

Previous Week Questions

- Did you have any Macintosh Computers at the Lab?
- How long did it take you to rebuild the desktop? Reset PRAM? Run Norton?
- Were you able to set up a maintenance schedule?
- If you already have one were you able to maintain the scheduled activities? If not, why not?
- Did you encounter any other problems or issues?
- How is your trouble log going? Are you keeping it current? If not, what is preventing you from keeping the log up to date?

Apprenticeship Program - Week 5

Activity

Brainstorming and Problem Solving

Concept:

Peers are a great resource

Objective:

Apprentices will learn:

1. How to present technical information to a group.
2. How to present solutions to problems.
3. How to brainstorm solutions.

Materials: None

Time required: 60

Background: Many times as technical professionals we find ourselves looking for solutions to our problems in a variety of ways. Many of our problems may have been solved by friends and colleagues in the field.

Procedure:

1. 1. Tell Apprentices that today we will be both clients and consultants.
2. Ask Apprentices what problems they are having at the labs.
3. Discuss troubleshooting resources and techniques.
4. Discuss problems and solutions found.
5. Ask Apprentices to share their unsolved issues.
6. Brainstorm solutions for unsolved problems.

Discussion:

Did it help to have other Apprentices help with your problems? Did you find the answer that you needed? What other issues did you learn about?

Weekly Assignments:

- Review / update supervisor on status of their project(s).
- Resolve issues that were solved by fellow Apprentices.
- Complete workstation maintenance as outlined on the computer maintenance check list.
- Journal activities.

Apprenticeship Program - Overview Week 6

Windows Peer to Peer Networking

Worksheets and Resources



Resources



Windows Peer-to-Peer Network

Overview of week

1. Previous week's questions.
2. Discuss types of networking configuration.
3. Discuss Server/Client and Peer to Peer.
4. Review cabling and hubs.
5. Set up a network with PCs.

Activities/ Time

- | | |
|-----------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week's questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Previous Week's Questions



- Did you find out information from the last class that helped you resolve some of the problems?
- Did the discussion encourage you to look for anything new at your sites? If so what did you discover?
- Did anything happen at the site that you would like to discuss today?
- How is the training here helping you?
- Is there anything that you think we should add that would help you at your site?

Apprenticeship Program - Week 6

Lesson

Windows Peer-to-Peer Networking

Worksheets and Resources

-  **Resources**
-  Windows Peer-to-Peer Network

Activity: Set up a network

Concept:
Sharing resources can be fun and save money

Objective:

Apprentices will learn:

- How to set up a Windows Peer-to-Peer network.
- How a hub works.
- Star configuration.

Materials: Windows 98 OS, 2 PC computers, two CAT 5 cables, one hub, Handout (see above).

Time required: 60 minutes

Background: A peer-to-peer network is a network of computers that allows each user to control their own settings, resource sharing, and security. There is no centralized control of security, no single logon environment, and no ability to maintain a roaming desktop environment (this requires a client/server network environment).

To create a peer network, you must have the following components:

1. A network interface card (NIC) or Local Area Network (LAN) adapter for each computer. *The same manufacturer and model of network card is preferred for each of the computers.*
2. Cabling that is supported by the network cards.
3. Windows drivers for the network cards.
4. A common network protocol.
5. A unique computer name for each computer.

Procedure:

1. Have two computers available to show Apprentices how to establish a peer-to-peer network.
2. Introduce peer-to-peer networks and client/server networks.
3. Discuss how a hub works.
4. Discuss how the cables (straight through and crossover) work.
5. Demonstrate how to establish a network.
6. Shut down the computer and install the network card and appropriate cabling for each computer.
7. Set up a peer-to-peer Network according the “Windows Peer to Peer Networking” resource

Discussion:

What components are necessary for setting up a network? What is the difference between a peer to peer and Client–Server network? When do you use crossover cable as opposed to a straight through cable? Why are protocol languages important? What is TCPIP? NetBeui? AppleTalk? Any other Protocols? (IPX SPX) (Communication.) What do we use TCPIP for? (Internet) What other networking terms did you learn? What does PING do? What kinds of troubleshooting techniques did you learn?

Resources:

<http://www.pcmech.com/networking.htm>

- Elements of network
- Set up basic LAN
- Sharing Modem




Weekly Assignments:

- Review / update supervisor on status of their project(s)
- Complete workstation maintenance as outlined on the computer maintenance check list
- Check and document the network
- Document client, protocols, NIC card, hubs
- Completed virus detection for each workstation
- Complete system utilities for each workstation
- Address agency tasks/priorities
- Journal when appropriate

Apprenticeship Program - Overview Week 7

Macintosh Networking

Worksheets and Resources

-  **Resources**
-  Connecting Your Macintosh
-  Setting up File Sharing

Activity:

Connecting your Macintosh

Overview of week

1. Introductory activity
2. Previous week's questions
3. Discuss the type of networks that are at the sites
4. Discuss Macintosh networks and how they are different from PCs
5. Set up a Macintosh network

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Introductory activity

The question of the day:

What's one success you've had at your site this week?

Previous Week's Questions

- What kind of network does your site run? Novell? Macintosh? Microsoft peer-to-peer? Client Server?
- What protocols are used? NetBeui? IPX? TCPIP? AppleTalk?
- What client is being used? Netware? Microsoft?
- What types of cabling are used? BNC? UTP?
- Did you discover anything else about the network?


Apprenticeship Program - Week 7

Lesson

Macintosh Networking

Worksheets and Resources

 *Resources*

 Setting up File Sharing

Activity:

Macintosh File Sharing

Concept:

File Sharing saves time and money

Objective:

Apprentices will learn:

1. How to file share using Macintosh.
2. Difference between crossover and straight through.

Materials: Macintosh OS, 2 Macintosh computers one crossover cable.

Time required: 60 minutes.

Background: File Sharing is the process of making Mac files available to a network for opening, editing, or any other purpose. While it's technically called File Sharing, it might be more accurately called folder sharing, since you actually make a folder (or hard disk) available to the network, rather than individual files. Sharing files on a network serves a number of purposes. It allows everyone to work with the same file, so you don't end up with out-of-date copies. It's also easy to make backups. A single file only resides on one computer, saving space on the others.

In order to share files between Macintosh computers, at least one computer must be configured to share its files. Use these instructions to enable the file sharing option of the Macintosh operating system 7.0 or later.

Important: refer to the resource titled "Setting up File Sharing" for a step by step description for setting up File Sharing.

Procedure:

1. Configure a Macintosh computer to share its files:
 - Go to Apple Menu Control Panel and open its **Sharing Setup** (in Mac OS 8.5 or later Sharing Setup control panel was renamed File Sharing control panel). Sharing Setup (A.K.A. File Sharing) control panel.
 - Enter your Owner Name, Owner Password, and Macintosh Name.
 - Click the **Start** button. This enables your computer's File Sharing capabilities. The Start button will change to Cancel while file sharing starts up and then change to Stop once File Sharing is active.
 - Close the **Sharing Setup** control panel.
 - From the computer's **Desktop**, select the drive or folder you want to share.
 - Select **Sharing...** from the File menu. A dialog box appears with the name of the drive or folder you selected.
 - Click **Share this item and its contents**.

2. Demonstrate how to access a Macintosh computer's files:
 - Once you have set up file Sharing on a computer, use these instructions to access that computer's files.
 - Go to the computer that will access the files. Open its **Chooser** and select **AppleShare** icon.
 - Select a **zone** (if Zones exists), then double-click the **name** of the computer you want to connect to (the name you entered in the Sharing Setup control panel).
 - Enter the user name and password to access the computer, then click **OK**. (The password is the same password you entered in the Sharing Setup control panel.)
 - Select the items you want to use, then click **OK**. The items will appear on your Desktop as server icons.

Discussion:

How do you set up File Sharing on a Mac? Where do you go to select Ethernet? Was this easier or more difficult than the Windows networking?

Resources:

<http://www-commeng.cso.uiuc.edu/nas/nash/mac/mac.glossary.html>

http://is.rice.edu/~consult/cca/mac_networking.html

<http://www.mac512.com/appletal.htm>

<http://www.k12.hi.us/~tethree/00-01/content/lesson47.htm>

<http://www.mac512.com/Macnet1.htm>

<http://www.macaddict.com/osx/>

Weekly Assignments:

- Document any Macintosh computers and how they are networked.
- Review/update supervisor on status of their project(s).
- Complete workstation maintenance as outlined on the computer maintenance check list.
- Address agency tasks/priorities.
- Journal activities.

Apprenticeship Program - Overview Week 8

Printing and Peripherals

Worksheets and Resources



Resources



Remove and reinstall the Printer Driver

Overview of week

1. Previous week's questions.
2. Discuss printing and peripherals.
3. Discuss how printing works - PC and Mac.
4. Discuss how to share printers.
5. Discuss troubleshooting techniques.

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Previous Week's Questions

- Does your site have any Macintosh computers?
- What kind do they have?
- What operating system do they use?
- How are these computers used?
- Are they connected to a network?
- Are they all Macintosh or is it a mixed environment?
- If mixed, how do they share files? Dave or PC MacLan? NT?

Apprenticeship Program - Week 8

Lesson

Printing and Peripherals

Worksheets and Resources



Resources



Remove and reinstall the Printer Driver

Activity: Spooling to the printer

Concept: Printing

Objective:

Apprentices will learn:

1. How to install a printer on Mac and PC.
2. Troubleshoot printers.
3. Troubleshoot other peripherals.

Materials: Computer with projector, Remove and Reinstall Printer Driver Handout.

Time required: 60 minutes

Background: Manufacturers continually introduce new types of peripherals. Something not yet invented may increase the functionality or your enjoyment of your computer. Your computer must meet the system requirements of any peripherals you buy.

Procedure:

1. Ask Apprentices what is the most common complaint on a network. It is usually "I can't print."
2. Demonstrate how to add a printer to a computer and how to share it.
3. Sharing your printer among the network computers is a simple process. Follow these steps:
 - a. The first thing you must do is to tell Windows 9x to redirect printing from the LPT1 port to the network queue. To do so, double-click the **Printer's icon in Control Panel** and then double-click the **Add Printers** icon.
 - b. Windows 9x will open Add Printer Wizard, click the Next button
 - c. Select the **Network Printer radio button**, and then click **Next** again.

- d. The Add Printer Wizard will ask you to provide the path to the network printer. Enter it in the format: **computer name**\share **name** where **computer name** is the name of the computer to which the printer is physically attached, and **sharename** is the share name that you've assigned to the printer.
 - e. The Add Printer Wizard also asks if you print from MS-DOS-based programs. Click the **YES** radio button, and then click the **Next** button.
 - f. In the Add Printer Wizard's next dialog box, select the type of printer you're trying to capture by selecting the **printer's manufacturer** from the **Manufacturer's list** and choosing the **printer model** from the **Printer's list**.
 - g. Click the **Next** button to continue.
4. At this point, the Add Printer Wizard will ask you to assign a name to the printer. This name isn't the same as the printer's share name. Instead, it's the name that your local PC will use, and it will appear under the printer's icon (title) and in any Select Printer windows.
 5. When it finishes copying the printer drivers to your hard drive, it will create an icon for the printer. You can now print to the printer in exactly the same way that you would if it were physically attached to your PC.

Discussion:

What is the most common problem on a network? How do you add a printer on a PC? Mac? How do you share a printer? What kinds of problems have you had with your printers?

Resources

PC

http://solutions.brother.com/Library/sol/printer/pc_driver_wizard.html

<http://support.microsoft.com/support/windows/topics/win98/print/printdr.asp>

(printer drivers)

<http://www.pcmec.com/showdoc/122> (sharing printer)

<http://support.microsoft.com/support/kb/articles/Q128/3/45.asp#3>

(troubleshooting)

Mac

<http://www.itc.virginia.edu/desktop/mac/osxprinting/osxprinting.html>

<http://www.macaddict.com/osx/>

http://www.lsit.ucsb.edu/helpdesk/resources/net_printing/mac.php

<http://www.info.apple.com/usen/macosex/>

Access technical documents:

106706: "[Mac OS X: How to Print](#)" and

106516: "[Mac OS X 10.1: Includes PPDs for Many PostScript Printers](#)"

Weekly Assignments:

- Document the types of printers that are being used.
- Document the printer drivers.
- Complete workstation maintenance as outlined on the computer maintenance check list.
- Address agency tasks/priorities.

Apprenticeship Program - Overview Week 9

Lesson

Back-up

Worksheets and Resources

 **Resources**

 Back-up Procedures

Overview of week

1. Introductory activity.
2. Previous week questions.
3. Discuss issues being addressed at work sites.
4. Discuss back ups and back-up software.
5. Review backup strategies.
6. Go over full back up, incremental, and differential.

Activities/Time

- | | |
|-----------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week's questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

The question of the day:

Does your agency back up their systems? If so how do they do it?

Previous Week's Questions

- What kind of printers are at the site?
- How are they connected? Print server? Workstation?
- What kinds of other peripherals does the agency have? Scanners?
- Are these shared?
- What kinds of problems do the users have with printing?
- Were you able to resolve the problems? If so, how? If not, why not?

Apprenticeship Program - Overview Week 9

Activity

Back-up Procedure

Worksheets and Resources

-  **Resources**
-  Back-up Procedures

Concept:

Back-ups save data

Objective:

Apprentices will learn:

1. The importance of back-ups
2. Types of software used
3. How to configure a back-up

Materials:

Sample back-up procedures, computer and projector

Time required: 60 minutes

Background: One of your most important functions as a System Administrator is to maintain the integrity of the data on your system. Since hardware does break and people make mistakes, it is imperative that you make frequent back-ups of the file systems. That way in the event of a disk crash or accidental deletion of files you can recover a recent version of the data or program. A full back-up is a complete copy of all your file systems. Should your file system be blown away you can recreate it exactly as it was at the time of the full back-up. These should be done monthly or weekly on each file system. Incremental back-ups copy only files that were added or changed since the last lower level dump of data was backed up. Since most of your files, e.g., system files, are static, they will not be included in the dump. This can save considerable space and time. A complete restoration of a damaged file system will then require the last full dump followed by the incremental dump(s). Incremental dumps should be done weekly or daily, depending on file system activity and importance.

Although many users rely on automated back-ups of some sort, it is a good idea for users to make their own daily back-ups through one of the following methods:

- To a directory on the local or network drive, or as a sub-directory in the main directory
- To a zip drive
- To a read/write CD
- To a 3.5 floppy
- To a Super 120 MD floppy.

It has been the case that automated back-ups do not always function properly, fail due to power outages or system problems or sometimes cannot be retrieved. However, having a reliable, retrievable back-up immediately on hand can't be beat.

Procedure:

1. Discuss back-ups and why they are important.
2. Discuss how data becomes corrupt, i.e., physical damage, viruses, accidental deleting
3. Discuss back-up type (full, incremental, deferential)
4. Discuss Tape Rotation
5. Discuss regular back-ups of files, archiving them securely offsite, and testing the back-ups.
6. Show Apprentices samples
7. If possible perform a back-up and restore data

Discussion:

What is important in a back-up procedure? When should you run a full back-up? What kinds of software are used for back-ups? What is the difference between incremental and differential back-ups? How would you restore data?

Resources:

<http://www.onenw.org/toolkit/backup.html>

<http://www.pcmec.com> (Back-up!,Back-up!,Back-up! article)




Weekly Assignments:

- Discuss back-up.
- Back up all lab workstations.
- Test existing back-up by restoring data from media to one computer.
- Complete workstation maintenance as outlined on the computer maintenance check list.
- Review/update supervisor on status of their project(s).
- Address agency tasks/priorities.
- Journal activities.

Apprenticeship Program - Overview Week 10

Troubleshooting Tips

Worksheets and Resources

-  **Resources**
-  Troubleshooting Model
-  Symptom Description

Overview of week

1. Introductory activity.
2. Previous week's questions.
3. Discuss issues being addressed at work sites.
4. Discuss troubleshooting model.
5. Discuss troubleshooting techniques, journals.

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lesson | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

The question of the day:

What do you see as the greatest challenge in your role as a system administrator?

Previous Week's Questions

- What kinds of back-up procedures are in place at the site?
- What kind of software do they use?
- What schedule do they use?
- Is there documentation on the back-up?
- Do they use full, incremental or differential?
- Have they ever lost data due to back-up failure?
- Why is it important to have a back-up system in place?

Apprenticeship Program - Week 10

Lesson

Troubleshooting Tips

Worksheets and Resources



Resources



Troubleshooting Model



Symptom Description

Concept:

Troubleshooting can get you through the rough spots

Objective:

Apprentices will learn:

1. How to using different problem solving techniques
2. How to develop an understanding of computer troubleshooting
3. How to use the Internet to look up information

Materials: Troubleshooting Model Handout

Time required: 60 minutes

Background: In troubleshooting you must have the right attitude to succeed. You CAN solve it. It's not magic--there's always an explanation. Whenever you are trying to solve a technical problem, whether on your computer or your car, it's helpful to break the problem down into steps and isolate each component.

Procedure:

1. Discuss with Apprentices the importance of a Troubleshooting Model
2. Identify, check connections, ask questions, isolate problems, reconfigure, reset IRQ's, replace parts, retest.
3. Go over the Troubleshooting Model handout
4. Ask Apprentices to give examples of their our troubleshooting techniques

Discussion:

What kinds of information should you get on the problem? What are the steps in the Troubleshooting Model?

Resources:

<http://www.pcmach.com/troubleshoot.htm> (beep and error codes)

<http://support.microsoft.com/directory/>

<http://www.troubleshooters.com/tfresh95/index.htm>

(building fresh Windows 95)

<http://www.macintoshos.com/troubleshooting/troubleshooting.html> (Mac)

<http://www.pcguides.com/ts/x/index.htm>

<http://www.macintouch.com/> (Mac)

<http://www.macaddict.com/osx/>


Weekly Assignments:


- Complete workstation maintenance as outlined on the computer maintenance check list.
- Review/update supervisor on status of their project(s).
- Discuss a troubleshooting model.
- Address agency tasks/priorities.
- Journal activities.

Apprenticeship Program - Overview Week 11

Review and Problem Solving

Worksheets and Resources

 **Resources**

 *To Be Determined*

Overview of week

1. Previous week's questions
2. Discuss issues being addressed at work sites
3. Discuss troubleshooting at work sites
4. Find resources on the Internet

Activities/ Time

- | | |
|---------------------------|------------|
| • Introductory Activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lessons | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Previous Week's Questions

- Did you use any troubleshooting techniques this week?
- Does the site have any troubleshooting notes in place?
- What kind of troubleshooting have you done at your sites?
- What was the most challenging?
- What was the easiest?

Apprenticeship Program - Week 11

Activity

Review and Problem Solving

Concept:

Peers are a great resource

Objective:

Apprentices will learn:

- How to target technical problems.
- How to present technical information to a group.
- How to present solutions to problems.
- How to brainstorm solutions.

Materials: None

Time required: 60

Background: Many times as technical professionals we find ourselves looking for solutions to our problems in a variety of ways. Many of our problems may have been solved by friends and colleagues in the field.

Procedure:

1. Tell Apprentices that today we will be both clients and consultants.
2. Ask Apprentices what problems they are having at the labs.
3. Discuss troubleshooting resources and techniques.
4. Discuss problems and solutions found.
5. Ask Apprentices to share their unsolved issues.
6. Brainstorm solutions for unsolved problems.

Discussion:

Did it help to have other Apprentices help with your problems? Did you find the answer that you needed? What other issues did you learn about?

Previous Week's Questions

- Did you use any troubleshooting techniques this week?
- Does the site have any troubleshooting notes in place?
- What kind of troubleshooting have you done at your sites?
- What was the most challenging?
- What was the easiest?


Weekly Assignments:


- Complete workstation maintenance as outlined on the computer maintenance check list.
- Review/update supervisor on status of their project(s).
- Put together a list of work performed for your resume.
- Journal activities.


Apprenticeship Program - Overview Week 12

Job Search

Worksheets and Resources

 **Resources**

 24 Hot Tips on Resume Writing

 Practice Interview Questions

Overview of week

1. Previous week's questions.
2. Submit final documentation, trouble-log, policies and procedures including network diagram, back-up procedures, virus detection process, troubleshooting journal.
3. Discuss how to do a job search.
4. Discuss interviewing techniques.
5. Closure.

Activities/Time

- | | |
|---------------------------|------------|
| • Introductory activity | 10 minutes |
| • Previous week questions | 15 minutes |
| • Lessons | 60 minutes |
| • Weekly assignment | 15 minutes |
| • Questions and answers | 20 minutes |

Resources

<http://interview.monster.com/virtualinterview/tech/>

Weekly Assignments:

- Submit final documentation, trouble-log, policies and procedures including reinstallation of OS, network diagram, back-up procedures, virus detection process, troubleshooting journal.
- Address agency tasks/priorities.
- Set up a time for closure.

Toolkit Evaluation

- What three elements of the toolkit were the most helpful to your program?
- What portions of the toolkit could be improved? In what way?
- What were the least helpful aspects of the toolkit?
- What topics do you feel needed more guidance or coverage in the toolkit?
- Do you feel there are topics that should be added to the toolkit? If so, which?
- Other comments and suggestions are WELCOME

**Please Email, Fax or Mail to:
CompuMentor
Apprenticeship Toolkit
435 Brannan Street, Suite 100
San Francisco, CA 94107
(415) 633-9300
email:mduffy@compumentor.org**

CompuMentor's IT Apprenticeship Program

CompuMentor is a San Francisco-based nonprofit organization whose mission is to act as a bridge to the information age for schools and organizations serving low-income communities. Founded in 1987, it is one of the oldest and most comprehensive nonprofit computer technical service organizations in the country.

With the support of the San Francisco Foundation, CompuMentor created a successful IT Apprenticeship Program. The goal of this project was to pilot a new way to transition IT certificate graduates with some hands-on experience, into Community Technology Centers. The project addressed two fundamental issues:

Community Technology Center staff have limited time and resources to maintain basic IT systems and rarely develop written System Administration practices and procedures. This program assisted CTCs where apprentices were placed in improving systems for keeping their computers running while freeing up CTC staff time for program development and other activities.

A variety of IT training programs exist for low-income and re-entry/career change participants, but a gap exists between the training programs and the actual experiences and social skills that graduates need to effectively compete for employment as network administrators. Many IT programs focus on A+ certification and skills more geared toward help desk or user support jobs. We found a great need for network administrators in CTCs, nonprofit organizations, and small businesses – yet most IT training programs are not preparing students for this kind of work. This program filled that gap.

Community Technology Center staff have limited background and understanding of how to establish and maintain basic IT systems and have limited knowledge of System Administration practices and procedures.

A variety of IT training programs exist for low-income and re-entry/career change participants, but a gap exists between the training programs and the actual experiences and social skills that graduates need to effectively compete for employment. This program filled that gap.

The focus of the program was to provide the apprentices with real-world work experience and to teach them higher-level technical and organizational skills. We are happy to report that we both met and in some cases exceeded our expectation for our objectives. The benefit of this program went beyond the services that the apprentice provided and the nonprofits they served. By improving System Administration and maintenance, the Community Technology Center became more efficient at serving their communities. The program also served as a model for how to bridge the gap from training program to actual employment.

IT Apprentice Program Design

Apprentice Duties And Responsibilities

Apprentices work as part-time systems administrators for 20 hours a week for three months at Community Technology Centers, completing tasks including troubleshooting hardware and software, documenting systems, maintaining virus protection, and running back-up procedures. Tasks include:

- Document computer lab: network configuration, architecture, IP addresses, and hardware and software procedures for standard, start-up, and recovery operations.
- Maintain inventory and documentation for hardware and software.
- As needed, upgrade software by installing patches, new versions, or service packs.
- Biweekly, update antivirus protection software and virus definitions.
- Set up new computers as needed, including moving data from one computer to another.
- Install new hardware and software for networked computers and local area networks Research and troubleshoot hardware and software problems as needed.
- Monitor back-ups and troubleshoot as needed.
- For 2-3 hours per week, be available to monitor lab and answer questions for patrons.
- Additional tasks, as assigned.
- Attend a weekly 2-hour training in how to establish and maintain good systems administration procedures.

Apprentice Skill Requirements

We do not suggest that individuals with only IT certification be placed as an apprentice. The ideal candidates will also bring the following “hands-on” experience and skills:

- Ability to troubleshoot problems in Windows 95, 98, 2000 and XP.
- Install, uninstall, reinstall, update service packs for OS.
- Ability to set up new hardware (such as scanners, printers) and update hardware drivers.
- Familiarity with DOS commands, batch files, file extensions, and system files.
- Working knowledge of PC hardware architecture, including processor, motherboard slots, CMOS battery, monitor connectors, etc.
- Able to add memory, configure hard drives, connect internal and external peripherals, identify types of cables, make partitions, and format hard drives.
- Familiarity with install, uninstall, custom install, upgrade, and back up common software packages, including email programs, Internet browsers, office suites, and virus and utilities packages.
- Able to do incremental and full back up and understand Windows backup program.
- Familiarity with different network layouts and protocols (client/server or peer-to-peer) and able to configure network neighborhood
- Mac skills and familiarity with security options desired but not required.
- Some familiarity with desktop publishing and graphics programs desired, but not required.
- Familiarity with Windows 2000, NT workstation, and/or XP desired.
- Work experience in a nonprofit organization or school (paid or volunteer).

Program Benefits

Apprentice Benefits

- Hands-on work experience as a systems administrator
- Work references
- Documentation of your demonstrated job skills and accomplishments
- Potential for employment with your host agency or another nonprofit organization (or in the private sector)
- Initial and ongoing training and support from CompuMentor and your host agency
- A stipend

Host Agency Benefits

- For Agencies that host an Apprentice:
- Low-cost, part-time technical assistance
- More time for other IT staff to complete larger-scale projects and initiatives
- Opportunity to train and assess the apprentice as a potential employee
- Improved IT systems as apprentice applies training in best practices to their site

Training Provider Benefits

For training programs that use this curriculum:

- Increased competency and employability of your students
- An excellent complement to existing curricula.
- Documentation of trainees demonstrated job skills
- Increased rate of job placement for graduates