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Contextualized Curriculum
for Adult Learners in Math and Literacy

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Keeping a Clear Record

Print:

The importance of clear written communication for documenting the work of an information technology (IT) Help Desk staff member

Industry Sector: Information Technology
Content Area: Literacy
Core Topic: Written communication

Expand All | Collapse All

Common Core State Standards

W.11-12.2: Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

W.11-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

W.11-12.5: Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

L.11-12.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.11-12.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

WHST.11-12.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

Adult Basic Education Standards

Writing Standard 1: Learners will express themselves through writing for a variety of purposes.

W1.4a Write correctly punctuated and constructed paragraphs describing how to make, build or do something.

W1.5b Compose a formal business letter using appropriate tone, style, and organization.

Writing Standard 2: Learners will apply knowledge of English vocabulary, language structure, and mechanics when they write.

W2.3a Use basic punctuation (e.g. periods in abbreviations, commas in a series of words).

W2.3b Combine simple sentences using commas and conjunctions to form complex sentences.

W2.5a Use correct sentence structure and follow the conventions of Edited American English (EAE) in all formal writing.

W2.5c Proofread and revise an essay to assure correct punctuation, spelling, grammar, cohesiveness, idea development, clarity, and relevant supporting details.

Industry Overview

From computer programmers to web developers, and from network administrators to technical support specialists caring for the IT infrastructure, there are information technology (IT) careers available in every sector of the economy. While some people in this field work for IT companies, IT skills and services are needed in fields as wide-ranging as financial services, medical services, biotechnology, engineering and environmental services[1]. The IT industry designs, develops, manages and supports the hardware, software, multimedia and networks we depend on in our daily lives and businesses. IT has revolutionized our world—from the ways we communicate to how we find information to how businesses operate. Job growth in the US IT industry is high and is projected to continue for many occupations within the industry. The field is constantly growing and changing and there are high levels of competition which makes it important for IT workers to keep updating their skills and to understand the latest technologies.

Careers in Information Technology[2]

Information technology careers are divided into four pathways: Network Systems, Information Support and Services, Programming and Software Development, and Web and Digital Communications.

Careers in Network Systems involve network analysis, planning and implementation, including design, installation, maintenance and management of network systems. Examples of network systems occupations include: network administrator, network technician, PC support specialist, telecommunications network technician, data communications analyst, and security administrator.

Careers in Information Support and Services involve IT deployment, including implementing computer systems and software, providing technical assistance, and managing information systems. Successful IT deployment is critical to the success of most organizations—the management and sharing of information depends on non-IT workers having functional computers, software and databases that meet their needs, and support when things aren't working. Information systems and support occupations include database administrator, enterprise systems engineer, help desk specialist, technical support specialist, and technical writer.

Careers in Programming and Software Development involve the design, development, implementation and maintenance of computer systems and software and require knowledge of computer operating systems, programming languages and software development. While many of the career opportunities in this area are in software companies, large organizations of other types—such as financial services— also offer many opportunities. Programming and software development careers include: software applications architect, operating systems designer/engineer, computer programmer, video game developer, applications engineer, and applications developer.

Careers in Web and Digital Communications involve creating, designing and producing interactive multimedia and social media products and services and include development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing. Organizations of all types and sizes use digital media (such as the Internet and social media platforms) to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues. Occupations in this pathway include web designer, webmaster, 3D animator, virtual reality specialist, and multimedia producer.

Mathematics and Literacy Skills Needed in Information Technology

The complexity of the IT industry, including the rapid pace of change in technology, requires workers to continuously upgrade their skills. Jobs in this industry require good problem-solving, critical-thinking, and reasoning; clear and professional communication; and a strong background in mathematics. Thus, in addition to technical skills specific to each job, mathematics and literacy skills are crucial for success in all occupations across the industry. Literacy is essential in this field as it is heavily dependent on written and oral communication, and workers need to be able to read, understand, and implement highly-technical content. Workers in this industry must communicate with clients, colleagues, and other departments and staff, including executives.

Regardless of how technologies change, a strong foundation in mathematics, particularly with such core areas as mathematical operations and number sense, measurement and estimation, ratios and proportions, and data analysis is very useful in this industry. For example, programmers and developers must be able to employ quick and competent computation and have the ability to select and apply the best mathematical model or formula to solve problem at hand.

Career Opportunities in IT with Education from Community Colleges

Massachusetts Community Colleges play a crucial role in preparing students for careers in IT across all sectors of the industry. The fifteen community colleges offer associate degree and certificate programs that prepare students to enter occupations across all sectors of the industry, from network administrators to technical support specialists to computer programmers to Web designers. For example, Cape Cod Community College's Department of Business has an IT program that prepares students for a range of positions through both the Information Technology A.S. degree and certifications that offer skills in specific concentrations in this field, such as networking and web design.

Recent Career Opportunities in Massachusetts

The following is a sample of IT job listings in Massachusetts that require associate's degree or certificate:

- Help Desk Technician [show]
- PC Technician [show]

The following is information about hires of recent IT graduates from Massachusetts community colleges:

- Bristol Community College, Computer information Systems: Computer Networks
- Mount Wachusett Community College, Computer Information Systems

Employment Outlook for Information Technology

Given the ubiquity of IT in the U.S. and the world today, employment in this industry continues to boom. Even during the current recession, there has continued to be high demand for workers with good technical, problem-solving and critical-thinking, and communication skills in the IT industry. The U.S. Bureau of Labor Statistics reported in its 2012-13 edition of the Occupational Outlook Handbook that employment in the industry is expected to grow "much faster than the average" of all occupations through 2020. Massachusetts has very high levels of employment and numbers of job openings in many IT occupations across the state. In 2011, it was one of the top seven states for employment opportunities in the industry. Furthermore, Middlesex and Suffolk counties were among the top 20 counties nationally listing IT positions.

However, within the IT industry, job growth and openings vary due to technological changes and competition (especially foreign). For example, employment for computer programmers in Massachusetts and nationally continues to be high, but is declining—future jobs will go to people with strong technical, cognitive, intrapersonal, and interpersonal skills. Likewise, lower-skilled jobs such as computer support specialists will have lower employment growth due to outsourcing (though help desk personnel are always needed in larger firms to assist non-IT staff with maintenance, troubleshooting, and repair). The highest growth areas in IT—nationally and in Massachusetts—are in such occupations as computer and information systems managers, computer systems analysts, and computer specialists.

Resources

Employment Outlook

- Massachusetts Career Information System
- U.S. Bureau of Labor Statistics: Occupational Outlook Handbook, Computer and Information Technology
- Jobs for the Future: An Examination of the Information Technology Job Market (2012)

Occupational Information

- Massachusetts Career Information System
- U.S. Bureau of Labor Statistics: Occupational Outlook Handbook, Computer and Information Technology
- WorkKeys Occupational Profiles
- WorkKeys: Occupations and Key Skills
- Information Technology Career Clusters
- Information Technology Career Frames

[1]http://www2.edc.org/ewit/materials/ITCCBRO.pdf

[2]As cited in http://www2.edc.org/ewit/materials/ITCCBRO.pdf

Workplace Scenario (8th Grade Level)

This scenario is based on the work of a Tier I Help Desk staff member. For more information, view this video.

You are a Tier I Help Desk staff member. You work in the IT Department of a medium-size consulting firm. You have been assigned the job of answering emails from your fellow employees that are requesting computer technical support.

Each time you get an email, you open a new ticket in an electronic database. Then, you write down in clear and concise language the problem the person is having. You can then either call or email the person if you need even more information to help you understand and solve the problem. You are supposed to always update the ticket to keep track of the important details in each interaction.

You look at likely causes of the problem based on the information you gather. You try and find an answer to the problem. You use the company troubleshooting manual and/or the company's online database to help you find an answer. You then try to fix the problem based on your analysis.

If you are not able to resolve the problem within 15-20 minutes, you bring the issue to a more experienced Help Desk staff member until a solution is found. You must carefully write down in clear and correct language the solution and the result before closing the ticket.

Workplace Scenario (High School Level)

This scenario is based on the work of a Tier I Help Desk staff member. For more information, view this video.

You are a Tier I Help Desk staff member. You work in the IT Department of a medium-size consulting firm. You have been assigned the task of answering email requests for computer technical support by employees.

Each time you receive an email, you open a new ticket in an electronic database. You document in clear and concise language the issue the person is experiencing. You can then either call or email the person if it's necessary to gather additional information to help you understand and resolve the problem. You are supposed to continuously update the ticket to document the important details in each interaction.

Based on the information you gather, you analyze possible causes of the reported problem. You research solutions in a company troubleshooting manual and/or the company's online database to address the causes you have identified. You then attempt to fix the problem based on your analysis. If you are unable to resolve the problem within 15-20 minutes, you are supposed to bring the issue to a more experienced Help Desk staff member until a resolution is found. You must carefully document in clear and grammatically correct language the solution and the outcome before closing the ticket.

Core instructional context

Lack of writing skills presents significant challenges to students' career and college readiness. In response to a 2006 survey, 72% of employers stated that they considered high school graduates to be deficient in writing and 80.9% deemed high school graduates deficient in written communication skills (Conference Board, 2006). As a result of these and other factors, writing is a critical skill for career readiness.

Writing is typically considered to be a **five-step process:** pre-writing, drafting, revising, editing and publishing. It's important to keep in mind that writing is a recursive process in which good writers move back and forth between pre-writing, drafting and revising many times during the course of creating a single document.

For many adult writers, **pre-writing** may actually be a pre-thinking stage before any writing is started. In this pre-thinking stage various ideas are considered about the topic. If the topic has not been assigned by the instructor, this is the time the writer chooses and narrows the topic. According to Purdue Online Writing Lab, the writer then needs to ask questions about the writing project such as:

- Who is the audience?
- Are they interested in the topic? Why or why not?
- What does your audience need to know about this topic?
- What experiences has your audience had that would influence them on this topic?
- What do you hope the audience will gain from your text?

To kick off the pre-writing process, lead students in brainstorming, clustering or questioning to generate ideas about the topic. This is also the time to gather any additional information required to write about the topic. Mind mapping is a brainstorming technique that helps build connections between ideas. The Brain is a website that provides free tools including for one for mind mapping. Another useful and free site is Spiderscribe.

One way for students to identify the additional information they need is to use a KWL chart to identify what they need to know. Groups of students can work on KWL charts together to guide their research.

In the **drafting stage**, the writer's goal is to use the pre-writing outcomes to help build the content. In this stage, the writer can use various strategies to get started, including free writing, listing and outlining both to develop the topic and get started. During the drafting stage, students should concentrate on organizing information logically and developing the topic with enough detail for the audience and purpose. At this stage, it is a good idea for students to work with a partner to discuss

the early draft versions and to get another point of view about the organization and sequencing of the content.

Revision is the process of refining the draft by evaluating it and making changes in order to improve the draft. Revising is a critical stage of the writing process and for most writers it is the most difficult. This stage is a good time for students to work in peer review groups. Peer reviewers need preparation for this role. The Conducting Peer Reviews section of the Writer's Handbook website from University of Wisconsin-Madison provides guidance for peer reviewers. For more information on guiding peer reviewers, visit the resource Using Peer Review to Help Students Improve Their Writing from Washington University at St. Louis.

Editing is a stage distinct from revision and it should be done after the revision process is completed. This stage is sometimes referred to as proofreading. During this stage, the writer takes a close look at the piece of writing with an eye to correcting errors in grammar and punctuation, checking spelling and word choice, and checking each sentence for readability. During this stage, the focus is on correctness and clarity. Common errors to look for while editing are listed in the Twelve Common Errors section of the Writer's Handbook website from University of Wisconsin-Madison.

Publishing takes place when a piece of writing is shared with its intended audience. Ideally students will write for an authentic audience (beyond the instructor) such as for the whole class or others outside class through a class website or other means. A student wiki or blog or other free online platform is another excellent way for students to share their writing beyond the classroom.

In the scenario of the person who works at an IT company Help Desk, the emails the person writes will be more informal than a report or research paper, but the person writing the email still needs to go through the writing process in order to identify and analyze the problem the customer is experiencing, to gather information for his response by researching the solution, to consider the technology experience of the audience for the email, to write a careful response, and to proofread and revise the email content before sending it to the customer.
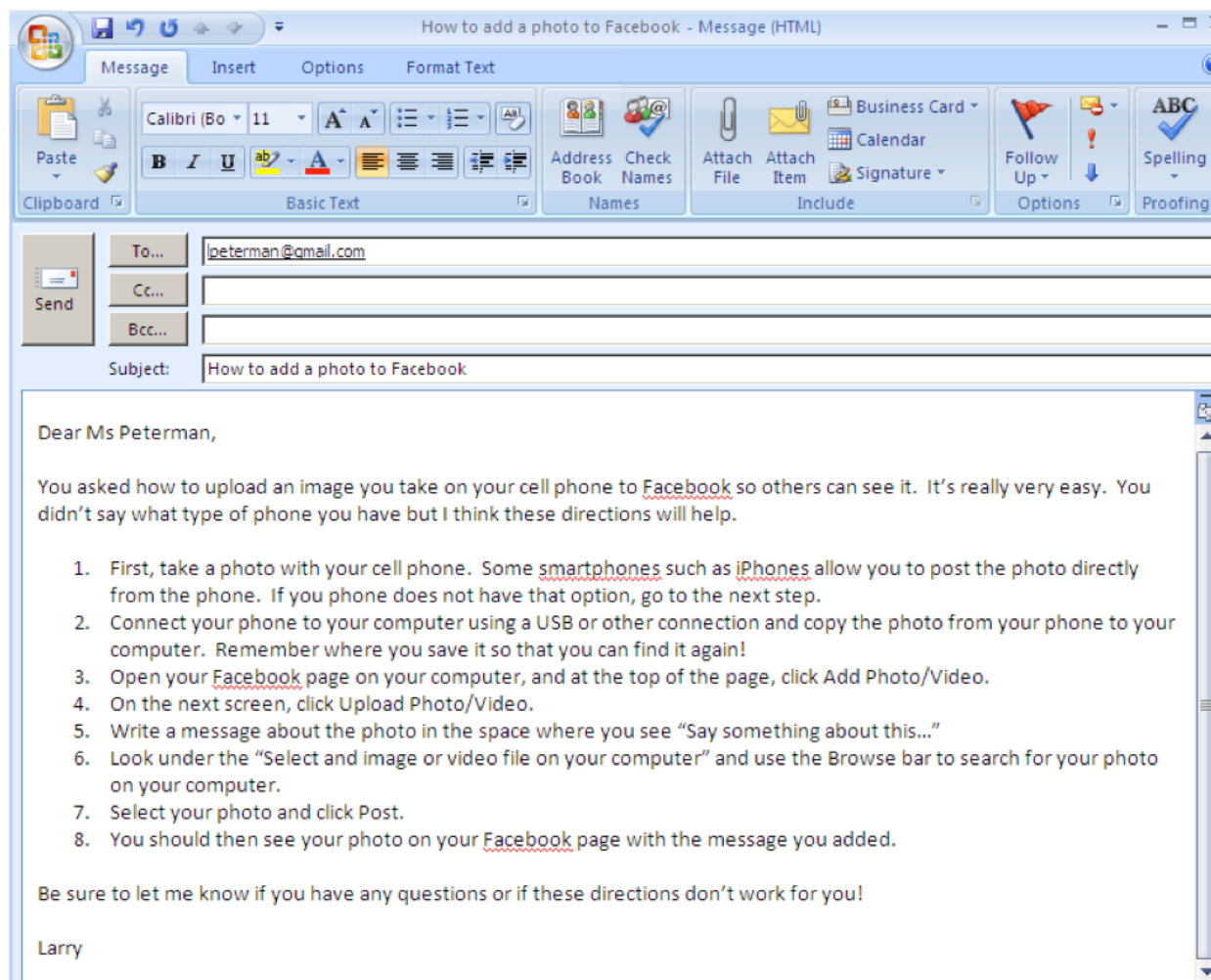
Show students the video The Key Forms of Business Writing: E-Mail. Students should take notes or jot down questions. After viewing the video, have students brainstorm in small groups the most important information they heard in the video. Use mind mapping tools (such as The Brain,) or other semantic mapping methods to capture the key ideas. Work with students to create a rubric for email writing or review with them the rubric that will be used to assess their writing.

Consider having students refer to several articles about writing emails:

- How to Send Tactful Emails from a Technical Support Desk, Daily Writing Tips
- Writing Effective Emails, Mind Tools
- Nine Guidelines for Writing Effective Email Messages, Tech Republic

Example Activity

Ask students to write an email explaining how to do something on the computer or on a website. For example, have students explain in their email how to take a picture with their cell phones and upload it to Facebook. Remind students to pay attention to the assessment rubric that will be used to assess their work. A sample student email might look like:

Email header fields:

To... lpeterman@gmail.com

Cc...

Bcc...

Subject: How to add a photo to Facebook

Dear Ms Peterman,

You asked how to upload an image you take on your cell phone to Facebook so others can see it. It's really very easy. You didn't say what type of phone you have but I think these directions will help.

1. First, take a photo with your cell phone. Some smartphones such as iPhones allow you to post the photo directly from the phone. If you phone does not have that option, go to the next step.
2. Connect your phone to your computer using a USB or other connection and copy the photo from your phone to your computer. Remember where you save it so that you can find it again!
3. Open your Facebook page on your computer, and at the top of the page, click Add Photo/Video.
4. On the next screen, click Upload Photo/Video.
5. Write a message about the photo in the space where you see "Say something about this..."
6. Look under the "Select and image or video file on your computer" and use the Browse bar to search for your photo on your computer.
7. Select your photo and click Post.
8. You should then see your photo on your Facebook page with the message you added.

Be sure to let me know if you have any questions or if these directions don't work for you!

Larry

Assessment

Use a classroom or college informal writing rubric to assess student email writing. Other sample rubrics or checklists to review are:

- Email Writing Rubric, Fermilab
- iRubric: Business Email Assignment Rubric, RCampus
- 10 Rules of Email Netiquette, Zimbio

Other rubrics for writing projects to review are:

- College Writing Rubric, Rio Salado College
- Grade 11 Writing Rubric, West Virginia Department of Education Teach 21
- Writing Rubric, Winona State University
- Rubric Examples, California State University, Bakersfield

Contextualized learning activities

1. Responding to a Help Desk Ticket

Ask the college IT Department for an example of an IT ticket and a sample email. Assign students to complete the IT ticket by writing an email response in clear and concise language. If a ticket from the local IT Department is not available, students can review the issues reported at Email Questions Help Desk. For example, here is a Help Desk Ticket about a problem with a Yahoo mail account where students can see both the problem and the solution provided by the technician.

Ask students to play the role of a Help Desk staff member and write an email to Joan who wrote the following email to the Help Desk.

To: Help Desk
From: JASmith@premail.netts
Subject: Using bullets in my document

Help! I'm writing a report for my boss and I need to use bullets to list some information. But my Microsoft Word program keeps changing the way I've listed the bullets and moving things around. Can you explain how to get it to stop doing that?

Joan

To help students generate questions about the issue Joan is having, lead a brainstorming session or assign small group brainstorming on the kinds of questions they need to ask. Students may think of other questions to ask on their own and one or more students may want to test out the issue to see if they can replicate Joan's problem. If students don't know enough about Microsoft Word to solve Joan's problem, remind them that Help Desk technicians often have to use research skills to locate solutions and that students may have to do the same thing to write a response to this problem. If they need help getting started, they can read the article "How to Control Bullets in Microsoft Word" or read the Microsoft short course "Bullets, Numbers and Lists." When students have their ideas (finished the pre-writing phase), they will draft an email to the instructor as if she or he is Joan asking for more information, providing some tips that may solve the problem, and letting her know that they want to help her find a solution. Remind students to revise or edit their drafts before sending and to review the class rubric to ensure they are meeting expectations.

2. Writing an email to a supervisor

The IT Help Desk staff member is required to write a monthly report to his supervisor analyzing the Help Desk questions he has received and answered. He needs to collect data about each of the calls – the number of calls, their topic, the success of his first response in solving the problem and the number of times he needed more than one email to solve the customer's problem or that he was unable to solve a problem and needed to escalate it to another level. He needs to analyze why his first response was not successful in some cases and determine how he might improve his work. In his report, he needs to tell the supervisor the steps he will take to improve his rates of success on the first attempt. Remind students to review the class rubric.

Monthly Data for IT Help Desk Staff Member

The IT Help Desk staff member responded to a total of 52 Help Desk emails and prepared tickets for them. This person resolved 45 Help Desk tickets this month, up from 34 the previous month or up or a 32% increase.

Of the seven the IT Help Desk staff member was unable to resolve, two were abandoned by the clients and five were escalated to the next support level. The IT Help Desk staff member escalated 10% of the calls that are received. Of the tickets he resolved, 65% were resolved in 20 minutes.

In reviewing the emails from customers, the IT Help Desk staff member noted that 20% of the tickets were not resolved with the first email. The IT Help Desk staff member considered one email that they sent and discovered that two of the steps were out of order in their response which created confusion on the part of the client and led to additional questions and responses. In one situation, the IT Help Desk staff member misread the question, and their response eventually led to abandonment of the issue by the client who now does not respond to the IT Help Desk staff member's emails asking if things are working for him. In another situation in which the IT Help Desk staff member escalated the ticket to the next level, the IT Help Desk staff member discovered that two

typos in their message led to an obvious misunderstanding on the part of the client that the IT Help Desk staff member did not realize at the time.

3. Creating a PowerPoint presentation

Direct students to read "How to make an effective PowerPoint presentation." Students should make a list or summarize the key ideas in this reading. They will prepare a PowerPoint presentation for an audience unfamiliar with Microsoft Word on how to use the Word menu ribbon, how to create a document, and how to save it on their computers. Students will:

- watch the video "Microsoft Word 2010 - Basic User Guide - Lesson One - An Introduction."
- take notes about the parts of Microsoft Word 2010 and how to create a document and save it. (Or students can watch "Microsoft Office 2007 Video Tutorial" depending on the version of Microsoft Word most students are using.)
- use their notes to create a PowerPoint presentation that explains to others how to use the menus (called the ribbon) and how to create and save a Microsoft Word document.
- review the presentation rubric for guidance for their PowerPoint presentation.

Sample rubrics for PowerPoint presentations to use or adapt are:

- PowerPoint Presentation Rubric, Purdue College of Education
- PowerPoint Rubric, University of Wisconsin, Stout

Contextualized test items

1. Write an email to solve a printer error

One of your clients has emailed you for help with his printer. He received an error message about "spooler" problems. You've generated a ticket as required by your Help Desk System and you researched the solution in your company manual and find this information:

> A print spooler is software that temporarily stores print jobs on the computer hard disk or in memory until the printer is ready to print them. If you've been waiting an unusually long time for a document to print, or if you see an error message about the print spooler, spooler subsystem, or spooler resources, you might need to change and then restart the Print Spooler service on your computer.
> To do this, we recommend that you save your work, and then restart the computer to restart the Print Spooler service

Write an email to the client with instructions on how to solve the problem.

2. Write an email to solve a frozen screen

At your job as a Help Desk technician you've received a ticket from a client whose PC computer is turned on and he's been using it for an hour or two, but now the screen is frozen with the cursor showing as an hour glass shape. Research the solution on the Common PC Problem Troubleshooting page and write an email with instructions for the client on how to solve his problem.

3. Write an email to a supervisor

Your supervisor has received a complaint from a client you recently tried to help. The message from the client says, "Your technician was absolutely no help to me with my computer problem. In fact, he told me that I just needed a new computer rather than trying to help. I think you should fire this technician." You had actually told the client that the software he was attempting to use would not run on Windows Vista, the Windows program on his old computer, but you didn't say he should buy a new computer and you did offer several solutions to his problem by recommending similar software that would work on his computer. When you were not able to provide more help and the client was not happy, you escalated the problem to another technician with more experience with older Windows

software. Write an email to your [supervisor](#) explaining the situation and how you would try to do a better job next time.

4. Revising an email to a [supervisor](#)

You need to revise the following email before sending it to your [supervisor](#). Read and revise the draft of the email below.

> Dear Mr Jones
>
> This is my one year anniversary in this job. I am now eligible for two weeks of vacation, and I'd like to take one wk. starting on Monday. I'm going to save the other week for the spring. If that's ok and my co-worker Charlie can take my cases. He said he is willing to do it. Can you approve this time off?
>
> Yours truly,
>
> Jack

Contextualized project

Flowcharting a Process

Flow charts are a form of logic maps that can help students present solutions to process problems in a logical sequence. Assign individuals to research how to [create a flow chart in Microsoft Word](#) and to determine a process they want to share through a flow chart. For example, if students would like to share how to create a spreadsheet in Excel, they can view the video "[How to Create a Spreadsheet using Excel](#)." Each student should plan and create a flow chart for the process he or she is explaining. He or she may prefer to explain the process of editing a photo, using Google Earth, playing a game or preparing a recipe. Ask students to also write an email to another person explaining the same steps in narrative form. As a final part of this project, students should write a paragraph or two explaining which format he or she thinks will be more useful to the end user, the flow chart or the narrative, and why.

Additional or extension activities, multimedia, readings and/or resources

[Power Point Tutorial for MLA format](#), Ellen Nichols at Middlesex Community College

[My Experience Working on an IT Help Desk](#), HubPages

[10 Things Help Desk Techs Can Do to Improve Service](#), Tech Republic

Instructor Adapted Classroom Materials

[Keeping a Clear Record ESL Lesson Plan,](#) Quinsigamond Community College, ESL

[Keeping a Clear Record Introductory Lesson Plan,](#) Middlesex Community College, ABE/GED

[Keeping a Clear Record Lesson Plan,](#) ABE/GED and ESL

[Keeping a Clear Record Lesson Plan,](#) ESL

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