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Accountability in Online Learning
J. Alan Baumgarten

I had an interesting discussion this week with a colleague about making educators more accountable for student achievement. I won't go into the granular details of our discussion, or take to the soapbox on my position. What I will share, however, is the turn of our conversation when the talk turned to online learning.

Web-based learning—driven by digital technology—enables a whole new type of assessment and accountability. All digital learning can be immediately verified and quantified. School servers can track which students visit which resources and follow what links...the same way businesses can track and chart Web "hits" and other site statistics. The log records everything.

Eventually, teachers will be required to log a minimum amount of Web learning time with students. This shouldn't surprise anyone; the government spent a bundle wiring every school. It won't be long before teachers are mandated to use it. When that happens, principals and district officials will start receiving weekly e-mails with sophisticated Web stats that show which students are online during what class period, and which resources they are using.

Accountability? Believe it. Why do I think it will happen? Because the private sector is already doing it.

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Viva la Revolution!
Lisa Kerscher

When students first hear about the French Revolution, they might immediately assume that it was similar to the American Revolution against the British crown 13 years before. And although the two revolts did share some common elements, the French version not only turned upside-down the organization of its own country, but it also affected many other nations of western Europe.

The French Revolution is an interesting history lesson to examine how both the masses and individuals can influence change in their social systems. By exploring the revolution's key events, people and the relatively new notion of human rights, students can better appreciate the history of France and other nations whom struggle with attaining the qualities of life associated with "freedom."

Overview

As a class, read the overview of the French Revolution at The Victorian Web. Discuss the text together, particularly emphasizing the document's reference to the forces of reason and those of superstition and privilege.

Next, have students form small cooperative groups and dive into The French Revolution Summary, which is somewhat more comprehensive. Ask students to read the document, and then assign them one of several assessment projects:

- Prepare a report describing the main causes of the revolution and how it may have been prevented (e.g., implementation of economic reforms by the King).
• Write an essay describing how the revolution affected other countries and the overall organization of Europe (e.g., the undermining of feudalism).

• Create a graphical outline/map of France's pre-revolution government and how it evolved into the newer government form (for that time period).

• Write an essay describing the general roles of the peasants and aristocracy in the revolution and how conditions changed for each of those classes.

If possible, assign each team a different topic, and then have them present their reports and essays to the class.

To put a human face on the revolution, students may enjoy digging into individual historical figures whose involvements in France’s transition likely swung the balance regarding the ultimate outcomes of the revolt. Ask students to visit The French Revolution Home Page. From this page, students can find other websites that provide information and leads on significant characters of the French Revolution, such as King Louis XVI, Marie Antoinette, Napoleon Bonaparte, Voltaire, etc. Ask each student to choose a person to research. Each student should study the key points and characteristics of that figure and role-play him or her to tell that person's story to the class.

Rights

A primary piece in the puzzle of the French Revolution is the creation of the "Bill of Rights of Man and the Citizen," in 1789. The notion of human rights, was relatively new (well, new within the century), and apparently had grown from the "forces of reason." The English had also created such a document, called the "English Bill of Rights" in 1689 and the Americans adopted a similar text, called the "Declaration of Independence." Have students get copies of each of the three documents, or print and photocopy one to hand out, from these sites:
• **Declaration of the Rights of Man** (1789)
• **English Bill of Rights** (1689)
• **Declaration of Independence** (1776)

Ask students, either individually or in small groups, to compare and contrast the documents and answer the following questions:

- What are the central themes in each document?
- Do the documents use the same terminology in identifying rights?
- According to each document, where does the power of government originate (i.e., where does sovereignty lie)?
- What are the similarities between the documents? the differences?
- Do any of the documents identify any restrictions to a person's rights, and if so, what are they?
- What would you include or delete in the documents that isn't covered already?

**Effects**

After the French and American revolutions, these countries changed tremendously to become the nations they are today—no longer ruled by a monarchy and enjoying relative equality with the chosen heads of state. However, other countries in the world are experiencing their own revolutions, while others are just now grappling with the results of their recently ended revolts.

To connect 200-year-old history with contemporary issues and anguish, ask students to discover a country (from printed or electronic news sources) that is currently reeling from the process of a nationwide revolution (not a war between different countries). Along with providing some basic statistics on the country (location, population, types of industry, etc), ask them to
find out why the people want change in the current
government/social system, how they are attempting to create
favorable change, and how long they have been actively
revolting against the current government. Each student or group
of students should either write a report or create a poster that
depicts the answers to these questions and present their
projects to the class.

Reference:
The French Revolution—The Victorian Web
http://landow.stg.brown.edu/victorian/history/hist7.html

The French Revolution Home Page
http://members.aol.com/agentmess/frenchrev/index.html

The French Revolution Summary
http://members.aol.com/agentmess/frenchrev/summary.html

English Bill of Rights
http://www.billr.htm

Declaration of the Rights of Man
http://www.yale.edu/lawweb/avalon/rightsof.htm

Declaration of Independence
http://www.nara.gov/exhall/charters/declaration/decmain.html
The U.S. Supreme Court
J. Alan Baumgarten

The controversy over "Indecision 2000" continues this month as legal battles over the outcome of the 2000 Presidential election move to America's highest court. On December 1, the Supreme Court will consider constitutional questions arising from a previous ruling by Florida's Supreme Court, which forced Secretary of State Katherine Harris to accept manually recounted ballots after the state's November 14 deadline.

GOP lawyers argue that Article II of the U.S. Constitution explicitly gives full power to a state's Legislature—not its Supreme Court—over the appointment of presidential electors. The suit also contends that the Florida Supreme Court's ruling introduced new election procedures after the election, thus violating voters' rights to due process.

Given the current focus on the U.S. Supreme Court this month, and with continuing legal battles over who actually won the Florida vote, December is an excellent time to introduce students to a brief study of America's highest court.

Structure of the U.S. Federal Courts

The Federal Judiciary refers to America's federal court system. Included in this branch of government are trial courts, appellate courts (courts of appeals), and the Supreme Court. Ask students to visit the Federal Judiciary site and study the graphic of the structure of the United States Federal Courts. What federal courts are outside the judicial branch? Discuss the unique role of these entities.
Have students return to the main page and click Frequently Asked Questions. They can then click on each of the questions about Federal Judges and read each answer. Pose these questions: What is the term for a Supreme Court justice? Who appoints them?

**The Role of the Supreme Court**

Moving on to the Supreme Court, check for background knowledge by asking students about the role of the Supreme Court in relation to the other two branches of the federal government. Develop a list of questions or clarification points that students can take with them to the United States Supreme Court site by the USCC+ Database. The site is divided into six sections; ask students to study the first four. They should look for answers to their questions, or answers to the questions posed:

1. **The Court and Constitutional Interpretation.** In terms of defending the Constitution of the United States, what power does the Supreme Court have? What kinds of cases does the Supreme Court hear?

2. **The Court as an Institution.** Where did the Supreme Court originally meet? How many Chief Justices have there been in the history of the court?

3. **The Court and Its Traditions.** Explain the symbols on the traditional seal of the Supreme Court. Why do all Justices shake hands at the beginning of the day?

4. **The Court and Its Procedures.** On what day does a Term of the Supreme Court begin? Who announces the entrance of the Justices and what is said?

**The Justices of the Supreme Court**

It's worth taking time to learn about the nine extraordinary men and women who serve as Justices of the Supreme Court. A good Web resource for this is the Oyez Project of Northwestern
University. When the site opens, ask students to click Justices, and then click the name of each Justice (listed in order of seniority). From there they can study the Appointment, Family, Education/Experience, and Biographical Sketch of each Justice. Who is the current Chief Justice and when was he appointed? Do his opinions suggest he is more conservative or liberal in his views?

While you're at the Oyez Project site, don't miss the chance to take a virtual tour of the U.S. Supreme Court Building (requires Quicktime 4.1). Along the tour you and your students will see 360-degree panorama images of each part of the building.

**Supreme Court Decisions**

It's too early to tell how the Supreme Court will rule on the case before it (but for the first time in history, a recording of the hearing will be available to the media within hours after arguments have been presented). In the meantime you and your students can search the Legal Information Institute's Supreme Court Collection to learn how the court has ruled on important issues in the past. Working individually or in teams, invite students to scroll down the list and click any topic of interest.

By clicking Education, for example, students will see a list of cases and dates. One of the most important civil rights cases was Brown v. Board of Education, in which discrimination in public schools was ruled unconstitutional. Click the + symbol next to that case to see an expanded view and read the judgments.
Go back to the topics list and click Voting. What cases regarding voting have come before the Supreme Court in the past? What were the judgments?

Reference:

Federal Judiciary
http://www.uscourts.gov/

United States Federal Courts—Federal Judiciary site
http://www.uscourts.gov/outreach/structure.jpg

USCC+ Database—United States Supreme Court
http://www.usscplus.com/info/index.htm

The Oyez Project
http://oyez.nwu.edu/

Supreme Court Collection— Legal Information Institute
http://supct.law.cornell.edu/supct/cases/topic.htm
The White House

Geri Ruane

Name _____________________________

The White House has a long and unique history. It has passed the 200th anniversary of its beginnings and this year reaches the bicentennial of its first occupancy by President John Adams. In this month’s Internet Challenge, we’re going to uncover amazing facts about this historical building and its occupants.

Zoom over to The White House Historical Association Web site at http://www.whitehousehistory.org/whha/default.asp.

Click History and then, click Timeline.

Click Architecture. Be sure to read about each decade in this timeline.

1790’s

1. What was Pierre Charles L’Enfant’s vision of the President’s House?

2. Which president planned and supervised the construction of this building?

1800’s

3. Why didn’t L’Enfant complete working on this project?

4. Who took over as the new architect in charge of this plan?

1810’s

5. What happened to the White House in 1814?

1900’s

6. Name the president who changed the name of the building to its official name of the “White House.”

1930’s

7. Why did Franklin D. Roosevelt request additional space in the West Wing?

8. How was the West Wing made larger?
1950’s

9. Why did Harry Truman appoint a Commission on the Renovation of the Executive Mansion?

1970’s

10. What type of research was conducted in 1978?

1980’s & 1990’s

11. How would it be helpful to have comprehensive records of the interior architecture and the exterior elevations for this historic house?

12. Name the two presidents who died on the same day.

13. Which president, whose nickname was “Old Hickory,” was elected by the popular vote in 1828?

14. Which president, whose nickname was “Old Man Eloquent,” was the son of our second president?

15. Which first lady said this? “I think I am more like a state prisoner than anything else, there are certain bounds set for me which I must not depart from...”

16. To this day she remains one of the best known and best loved ladies of the White House.

17. Which woman left behind a remarkable record as patriot and first lady, wife of one president and mother of another?

18. Who provided the bulk of labor in building the White House, the United States Capitol, and other early government buildings?

19. Where did the African American staff, and other servants who lived at the President’s House, most often have their rooms?
20. What did the census show about the number of free blacks and slaves in Washington on the eve of the Civil War?

21. What type of documentation would a black person have to carry around proving that he or she was not a runaway slave?

22. In what cities did George and Martha Washington live before the President’s House was completed?

23. Name two instruments that Washington’s musical step-granddaughter used to entertain guests at the White House.
   a. 
   b. 

24. Who did President Adams invite to play at the White House on New Year’s Day in 1801?

25. How many years ago did President Hoover make “The Star Spangled Banner” the official national anthem?

26. Name the tune that has become an important American ceremonial tradition and regularly heralds the appearance of the president at formal events of state today.

At the bottom of the page and click fyi (for your information).

Click Technology and Communications. A pop-up window will appear. Read the information on this page.

27. How many years ago was electricity installed in the White House?

Extension Activity:

Scroll to the bottom of the page and click “Home.” On the home page, click “Anniversary.” Then, click “Photo Gallery.” Click on each of the thumbnail images to see a larger image. (Remember to close out the pop-up window after you're done viewing the image!)

What photograph do you find most interesting? Write a short story about that photograph pretending that you lived during that time period. Describe what it was like living in the White House during those years.

Congratulations on completing this Internet Challenge. It feels as if we’ve just had a personal tour of the White House, doesn’t it? Exploring the past of this great building opens doors to new knowledge about our country’s history.
Answers to December’s Internet Challenge

1. The President’s House was a major feature of Pierre Charles L’Enfant’s 1791 plan for the city of Washington. He envisioned a vast palace for the President (a house five times the size of the house, which would actually be built).
2. President George Washington
4. James Hoban, an Irish-born and trained architect then living in Charleston, South Carolina, won the design competition for the White House
5. Hostilities with Great Britain, begun in 1812, culminated in the invasion of Washington on August 24, 1814. British troops entered the defenseless city, where they ate a dinner prepared for the President at the White House, and then torched the building, destroying all but the outer walls.
6. Theodore Roosevelt
7. With the expansion of the staff in the 1930s, Franklin D. Roosevelt requested additional space of the West Wing.
8. Improvements to the West Wing: a second story was built, a larger basement for staff and support services was added on, and the oval office was moved from the south to its present location in the southeast corner, adjacent to the Rose Garden. The wing doubled in size.
9. Soon after moving into the White House in 1945, President Truman noticed large areas of cracking in the plaster throughout the house. A structural survey revealed major problems caused by stress from the 1902 floor-bearing steel beams and the weight of the third floor and roof, all pressing against the inner brick walls. In 1948 Truman appointed a Commission on the Renovation of the Executive Mansion that decided to retain the original walls, the third floor and the roof, while removing and then reinstalling the interiors within a skeleton of steel structural beams on a new concrete foundation.
10. Beginning in 1978, a study was begun to assess problems with the exterior paint since the preservation of the historic house and its contents has received high priority.
11. The results of these two projects combined to create a comprehensive record of the historic main house. The updated drawings will be used for base documents for future renovation, restoration, maintenance, and interpretation of the house.
12. John Adams and Thomas Jefferson both died on July 4, 1826.
13. Andrew Jackson
14. John Quincy Adams
15. Martha Washington
16. Dolley Madison
17. Abigail Adams
18. African Americans
19. They lived in the basement.
20. The census recorded that the city of Washington had 9,029 free blacks and 1,774 slaves.
21. Municipal codes required that black people would have to register and carry a certificate of freedom with them.
22. They lived first in New York and then in Philadelphia.
23. Nelly Custis played a five-octave, two manual harpsichord from London and a Dodds pianoforte, one of the first pianos built in America.
24. They invited the young United States Marine Band, consisting of only eight or ten musicians, to play at their first reception on New Years Day, 1801.
25. Sixty-nine years ago (2000-1931)
26. “Hail to the Chief”

Extension Activity. [Students’ own answers.]
Santa Sites and Holiday Fun
Mary E. Ashmore

In December schools are buzzing with holiday festivity and fun: plays, concerts, decorations, activities, and treats. This season, extend the cheer to your online learning as well by taking your students to some of the best holiday sites on the Web. Sure, there are plenty of fun and games for all, but you'll also find some excellent reading and learning resources.

Respecting All Traditions

In American public schools, the Christmas traditions of Santa, stockings, and decorating the tree dominate the celebration. If you want to give your children the opportunity to experience and learn about other observances and traditions, the Internet offers several good resources.

First take students to Happy Holidays!! at the Bry-Back Manor site. The first section has links to short readings about Christmas traditions around the world: England, France, Germany, Mexico, Sweden, and the United States. Each section includes a companion craft activity.

The second section is about Hanukah (or Chanukah), the Festival of Lights. Here students will learn the origins of this Jewish holiday, as well as the symbols and observances associated with it. For a craft activity, students learn how to make a dreidel. For more Hanukah fun, including an online dreidel game, visit the Torahtots.com Chanukah site.

Back at Happy Holidays!!, the third section is about the African-American holiday Kwanzaa, a name which comes from the Swahili language meaning “first fruits of the harvest.” For the activity, students can weave a Kwanzaa Mat.

Curriculum Standard

- TEKS: 113.3
  Social Studies
  (1.2) History. The student understands the origins of customs, holidays, and celebrations.
Santa Fun

There's no shortage of Santa fun on the Web this time of year. Start with Santa's Secret Village at Northpole.com. Right away you'll see that this site is special, with exceptional art and animation. You can help students browse the site by a specific activity—this works well for whole-class learning—or let students (individually, in teams, or in groups) explore by clicking one of the houses in the village. Some of these links are e-commerce portals (offer toys or videos for sale), but others offer children's stories or activities. Steer children toward the Reindeer Barn, the Workshop, or the Elf Clubhouse.

Another similar site is available at Claus.com. From the village, direct students to the Toy Workshop, featuring a wonderful animated toy machine to explore, and Elf School, featuring nine elf games you students can play to earn their elf diploma.

Perhaps the best site for pure Christmas enjoyment is Blackdog's Christmas Fun and Games site. Some of the fun games include Tic Tac Toe (with Santa or Rudolph), Name the Christmas Song, and Get Scrooge. There are interactive activities as well, such as decorating a Christmas tree, building a snowman, and making reindeer food. Kids can even give Santa a little smooch. This site has a secret: if students click on a blue snowflake it will take them to a random page in the site. Share the secret with one or two students and see how long it takes for word to get around.
A Golden Holiday Site

I saved the best site for last. If you and your students visit only one site this season, make it Goldie’s Winter Wonderland by Golden Books. Why? Because when your students visit the site, play some of the games, and donate the virtual gifts they collect, Golden Books will donate funds to the Marine Toys For Tots Foundation. You can have fun AND do something to help less fortunate children have a happier Christmas.

When the Flash site opens, click Visit Winter Wonderland at the bottom right. Once you’re in Wonderland, click Games. Students can play the Elf Maze game, explore the Let It Snow Globe, color online, or have an online story read to them. Every time a student finishes an activity, he or she should go back to the main page and click Pack Toys with Santa’s Elves. The gifts will be waiting, and the Elves will pack them up. Don’t skip this step, or the virtual gifts won’t be counted.

There’s more fun here too, like an online story of Rudolph the Red-Nosed Reindeer. You and your students will find more Christmas treasures as you explore the site.

Merry Cyber-Christmas and Happy Virtual Holidays! Have a wonderful season and enjoy a well-deserved Christmas break. We deeply appreciate who you are the good work you do.

Reference:

Happy Holidays!!
http://www.bry-backmanor.org/holidayfun/dec.html
Chanukah—Torahtots.com
http://www.torahtots.com/holidays/chanuka/chanuk.htm

Santa's Secret Village—Northpole.com
http://www.northpole.com/main.html

Santa’s Village—Clause.com
http://www.claus.com/village.shtml

Blackdog’s Christmas Fun and Games
http://www.blackdog.net/holiday/christmas/index.html

Goldie’s Winter Wonderland—Golden Books
Historic Presidential Races
J. Alan Baumgarten

The Presidential campaign of 2000 has been historically close. Weeks after the November 7th vote, the outcome of the election remained unsure, with the state of Florida and its 25 electoral votes hanging in the balance. The vote in that state has been highly controversial due to allegations of uncounted, miscounted, rejected, or confusing ballots, and numerous court battles ensued.

For information about the legalities involved in the 2000 election, visit this site on Presidential Election Law.

Yes, the 2000 election is making history. But this is not the first time in history a presidential election has been close. In terms of the Electoral vote, it won't even be the closest. This month's current events lesson revisits the history of Presidential elections. You will learn about some other tight races in U.S. history and how the news media has become an increasingly important factor in the election.

For the Record

How have election results varied throughout America's history? Which elections were close, and which were landslide victories? Compare historical election results at Grolier's The American Presidency. Review the results of the Electoral vote for each election year and compare with the results of the popular vote. Was there ever a presidential election tie? Which presidents had the most decisive victories? Has a president ever won the Electoral vote but lost the popular vote?

Visit CNN's Election 2000 review of history's closest elections in the Electoral College. Click Electoral College to see
the Electoral results, and then click [Popular Vote](#) to see those results. The Popular Vote page also indicates if the candidate who won the popular vote lost the Electoral vote. What explanation is given for the Electoral tie of 1800, and what does it have to do with the 12th amendment?

Write down the years of these historically close elections. You will need these for the next section.

### Election Central

You can read a brief summary of every election in U.S. history at History Central's [Election Central](#) site. Begin by scrolling down to the yellow and orange table with the heading [Learn About the Elections](#). Now click each of the election years you noted in the last section and read the summary. What were the key issues in each race? What were the deciding factors?

### Elections and the Media

Throughout the past century, the news media—especially radio, television, and the 'Net—has become increasingly influential in determining the outcome of presidential elections. One site that explores this topic is Newseum's online exhibit, [Every 4 Years](#). Choose the Shockwave exhibit if you have Shockwave and a high-speed connection, or choose the HTML exhibit to read a text version of the exhibit.

When the exhibit opens, read the introduction and then scroll to the right along the historical timeline. Along the way, click the red section headings to read or hear about trends in campaign reporting. Also click the red microphones to read or hear fictional news journalists respond to their role in election coverage.
How did radio, television, and the Internet each change the strategies of presidential campaigns? When did election polls become an important part of campaign reporting?

Reference:

Presidential Election Law
http://www.jurist.law.pitt.edu/election2000.htm

The American Presidency
http://qi.grolier.com/presidents/results/restable.html

CNN Election 2000—Close Presidential Elections

Election Central—History Central

Every 4 Years—Newseum
http://www.newseum.org/everyfouryears/
Faculty Provisions for Your Network
Raymond Jaksa, MS

This article is the third of a four part series to define the Educational Technology Design Guidelines and Standards for most schools. This article addresses basic network designs and requirements for the building itself.

These guidelines outline the technology infrastructure requirements for schools within the Mansfield I.S.D., but can be applied to almost any campus plan. The infrastructure guide consists of space requirements to support technology, distribution schemes for cabling, and other building required services (e.g. air conditioning, electrical service). Also these design guidelines establish how to implement the Wide Area Network, Local Area Network, and other building-wide cabling required for the support of any district's technology plan.

The required square footage for the main equipment area is a function of the number of independent spaces served, plus an overhead amount for backbone equipment. A room that is 225 square feet (ideal dimension 16' by 14') provides space for 10 equipment racks which would represent a typical maximum growth figure. The minimum space would be for 5 racks, which would require 150 square feet. However, actual media service requirements may change, and therefore must be confirmed on each project.

Dividing the number of classrooms by eighteen and adding a control device to the result can derive the typical number of racks. (This formula is based upon one media device (VCR, laser disc. etc.) for every six classrooms or instructional spaces. Furthermore, on average three media devices and their associated electronics will be mounted in each equipment rack.). Additionally, space for computer needs and personnel, if any, must be added to these figures.

Electrical Needs

Provide three 120 VAC, 20 amp circuits for every two bays including any allowed for growth. If computers are located within this space, provide conditioned circuits with no more than four workstations or five servers per circuit.
HVAC Needs for each closet

- Maintain at 64 to 75 degrees Fahrenheit.
- Humidity should be 30% to 55% relative humidity.
- Maintain a positive pressure ensuring one air change per hour.
- Provide HVAC on an as needed basis. However if network servers, or other operationally critical equipment is collocated within this space, serve 24 hours a day, 365 days a year.
- This space should also serve as the CATV service facility. Ensure local cable company’s service requirements are accommodated.

Wiring Closets

- Connection point between user outlets and horizontal distribution.
- Connection point between horizontal and backbone distribution.
- House equipment such as converters, concentrators, hubs and switches associated with LAN; requirements specific to equipment rooms are noted as such.

A wiring closet that also accommodates equipment is usually known as an Equipment Room. One Equipment Room in every building also functions as the Main Distribution Frame (MDF) room that is where signals transition from intra-building cabling to inter-building cabling.

This space may be a shared space with telecommunications or other systems (e.g. telephony, alarms, security, video, audio, etc.), the additional requirements for these systems have not been verified to function within this space allocation. Any significant usage of wiring closets for these other systems, require the designer to revalidate the space and building service requirements.

Location for closets

A single closet can serve no more than 10,000 square feet of useable floor space, or have a horizontal cross-connect cable that exceeds 295 feet. However, if the drop density is less than one per 100 feet, the closet may serve a larger area provided that the maximum cable length (295 feet) is not exceeded.
Locate the closet as close to the center of the area to be served as possible. Provide corridor access (not through mechanical or electrical rooms). Vertically align closets in multiple floor buildings.

Consider electromagnetic interference. Locate so that the interference is no more than 3.0 Volts per meter across the useable bandwidth of the serving cables (e.g. Category 5 has an upper bandwidth limit of 100 MHz).

**Facility Ceiling Provisions**

Ceiling height 8’ - 6” minimum. False ceilings are not permitted. Provide guards for sprinkler heads if employed.

- Walk-in closets are no less than five feet deep.
- Shallow closets are no less than two feet deep.
- Floor loading is no less than 50 pounds per square foot in accordance with ANSI/TIA-569.
- To determine minimum square foot required for active equipment, if any, divide the useable square footage floor space (including hallways) by 100. In any event it must be no less than 150 square feet.
- Provide no less than three linear feet of useable wall space for each 1,000 square feet of useable floor space served.

**Square Feet of Wall Lining**

Line one wall with trade size % inch AC-grade plywood to a height of 8 feet. In shallow closets, mount on the front facing wall.

- Coat with two coats of fire retardant, white paint.
- Provide so that no less than 6 feet of height is usable for cross-connects or equipment purposes.
- Provide with cable management devices (e.g. d-rings, lashings, strain relief, etc.)

**Electrical Service Needs**

Electrical service is only required in closets with active equipment (for planning purposes all closets should be assumed to have active equipment). Electrical requirements are:
• No less than two dedicated 20 amp, 120vac conditioned circuits.

• One additional 20 amp, 120vac convenience circuit with outlets on 6-foot intervals. Properly label convenience outlets.

The lighting requirements are to have 50 foot-candies illumination three feet above finished floor. Locate fixtures to illuminate termination area and front and rear of equipment above the glint angle (55 degrees) of maintenance personnel.

Clearances in Working Space

Provide 42 inches of clear working space in front of equipment and cross-connect fields. Segregate cross-connect fields into distinct areas within the room, terminating cables of like type adjacent to one another.

Conclusion to Part III

New regulations are being developed to ensure the equitable access to information and technology by all students and teachers. The purpose of this article is to provide educators and architects with the technical standards for providing voice, video, and data communications capability in every classroom and to establish a framework school personnel can use to plan for the effective use of educational technology. Technology is not an end in itself. Technology provides the gateways to information and resources that allow individuals to:

• Locate, retrieve, and/or store information in a wide range of formats

• Communicate through a variety of information formats

• Teach and/or learn with diverse approaches and styles

This document is the first step in providing state leadership and assistance to schools all over the country to support educational technology. We trust its use will be helpful in developing plans and implementing technology in schools throughout the country.

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Computer Viruses
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Computers are frequently hailed as one of the greatest achievements in the history of mankind. Unfortunately, computers, like virtually every other technology, are not impervious to failure or sabotage. In fact, it has become common knowledge that computers can be attacked fairly easily by pranksters, disgruntled employees, or malicious electronic terrorists. But what is even worse is the fact that innocent people who have no intention whatsoever of causing damage to another person’s computer can unwittingly participate in the destruction of valuable data.

How can this happen? How is it possible for people who have limited technical knowledge to cause serious computer problems for their friends, colleagues, or family members? The answer is the dreaded computer virus.

What Is A Computer Virus?

A computer virus is nothing more than a computer program – a set of instructions that the computer executes. The distinguishing characteristic of a virus, however, is that the instructions contained within the program have unintended, and often undesirable results. For example, some viruses will cause your computer to erase specific types of data files such as word processing documents, spreadsheets, or music files. Other viruses are less specific, and simply cause the computer to erase all of its files – data files as well as program files. Still other viruses will attack the system areas of the computer’s hard drive rendering it totally inoperable.

Another class of computer viruses has recently emerged as the popularity of the Internet has grown. These new viruses will attack Web and E-mail servers in a variety of ways. Sometimes the attacks result in the destruction of data on the server, but in many cases the server is rendered incapable of performing its intended function. In these latter instances it is common for the virus to saturate the server’s communications channels to the point that they can no longer receive requests from legitimate clients. This type of viral behavior is commonly known as a “denial of service” attack.
How Do Computer Viruses Spread?

It is important to note that computer viruses can spread from one computer to another in a variety of ways. Before Local Area Networks (LANs) and the Internet became so pervasive, the most common way in which computer viruses were spread was via the floppy disk. Many viruses can “infect” the boot sector of floppy disks, while others will attach themselves to executable program files stored on the disk. Then, whenever the diskette is inserted into a new computer system, the virus is transferred from the floppy to the new host. From there, the virus can infect other floppy disks, and the infection process can continue to propagate from computer to computer for as long as the infected floppy files are shared among different systems.

Although it is still possible for computer users to spread viruses unknowingly by means of floppy disks and other removable storage media (such as Zip disks, magnetic tape, and even CD-ROM disks), it is much more common for viruses to travel over a LAN or the Internet. It is especially costly for companies when a file server becomes infected because the server may then spread the virus to dozens, or perhaps hundreds, of other computer workstations in a matter of seconds. And the amount of time and resources that a company must devote to eliminating the virus can be staggering, especially when the virus can spread much faster than humans can work to eliminate it.

The Internet is perhaps the most “virus-friendly” environment of all because viruses can spread throughout the world in a matter of days, or even hours. One way this can happen is when an Internet user posts – either knowingly or not – an infected program on a Web server and makes it available for download. When Web users download and execute the program on their own computers, they become infected instantly, and can begin to spread the virus themselves through any of the means discussed above. But maybe the most diabolical of all virus transport mechanisms is through common e-mail programs. An e-mail message is simply textual data – not a computer program that can be executed. Therefore, an e-mail message by itself cannot be infected by a virus. However, most modern e-mail programs let users “attach” a file to a message, and the file may be an infected executable program. When the recipient of such an e-mail message opens the attachment, the program executes and the virus is unleashed on the new host system. At this point, the virus is sometimes passed on to the recipient’s friends, colleagues, or family members if he or she forwards the e-mail message to them. And in some recent cases, the user does not even need to forward the virus on manually because it employs enough intelligence to scan the recipient’s address book and send itself on to other people!
How Can I Protect My Computer From Viruses?

There are a number of software utilities available that can detect computer viruses, and in many cases eliminate them from infected systems. Two of the most popular and effective utilities are McAfee’s Virus Scan for Windows, and Norton’s Anti-Virus for Windows and Macintosh. These programs can be downloaded from the Internet and, when properly installed and configured, they can do a lot to prevent your computer from becoming infected. However, it is important to realize that new computer viruses are being created continually, and no anti-virus utility can be 100% effective in detecting all of them. Consequently, you should exercise your own judgment and intelligence to avoid possible infection. For example, never run a program from a floppy disk unless you are certain of its origin and purpose. Never open an e-mail attachment if you don’t recognize the sender. And even if you do recognize the sender, it would be wise to call him or her to verify that they intended to send you the message. If they are not aware of sending the message to you, there is a good chance the attachment contains a self-propagating virus.

Conclusion

Although computers are often viewed as incredibly complex and sophisticated machines, in reality they are really quite “dumb”. They are not capable of doing anything but executing electronic instructions, even if those instructions cause some very unpleasant results. Computer viruses are nothing more than virulent computer programs that can cause computers to delete their own data files, corrupt their own operating systems, or maybe even choke their own communications channels. Therefore, we as humans must use our own intelligence and exercise great caution whenever we introduce new software into our computer’s operating environment. If we are careless in this regard, we might someday cause significant problems not only for ourselves, but perhaps for other people as well.

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