



# Computer Troubleshooting

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<http://www.tie-online.org/2004>

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# Common Problems for Troubleshooting

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- What are your problems?
- Top 10 Problems and Ways to Fix Them
- Fundamental Rules of Problem Solving
- Tips for Common Hardware Problems
- Tips for Common Software Problems
- Protecting Your Computer
- Buying Hardware and Software



# Top 10 PC problems and ways to fix them

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## #10 Dead system:

- ✓ Verify power is on
- ✓ Look for lights and listen for sounds
- ✓ Check connections and power outlets

## #9 Screen is blank:

- ✓ Verify the monitor is on
- ✓ Check connections (video cable, power)
- ✓ Move the mouse/Press the space bar
- ✓ Check power system settings (mainly for laptops)



# Top 10 PC problems and ways to fix them

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## #8 Series of beeps during boot process

- ✓ Long and continuous = CPU
- ✓ Short and continuous = RAM
- ✓ Key is something is wrong with the Boot process

## #7 Cannot Print

- ✓ Verify the printer is on
- ✓ Check printer cable & power connections
- ✓ Check the driver software



# Top 10 PC problems and ways to fix them

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#6 Error message "non system disk":

- ✓ Check for a floppy disk in the drive
- ✓ This will not occur on Windows® XP/2000

#5 Error message displays during booting:

- ✓ The procedure depends on the error
- ✓ See the help menu or reinstall OS

#4 I may have a virus...

- ✓ Check for updates on web
- ✓ Get updates from another computer
- ✓ Ref. Virus section



# Top 10 PC problems and ways to fix them

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## #3 A peripheral device is not working

- ✓ Check Device Manager
- ✓ Ensure card is seated
- ✓ Verify the driver software is up to date

## #2 Forgotten Password

- ✓ MAC: boot from the Install CD and reset from within the Aqua GUI or boot machine in single -user mode (OS X and up)
- ✓ PC: use safe mode or just clear the CMOS



# Top 10 PC problems and ways to fix them

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## #1 My e-mail doesn't work:

- ✓ Verify Password
- ✓ Contact sys admin.
- ✓ Use help menu



# Fundamental Rules of Problem solving

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- Don't overlook the obvious
- Check the simple things first
- Make no assumptions
- Verify everything
- Approach the problem systematically
- Start at the beginning



# Fundamental Rules of Problem solving

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- Isolate the source of the problem
  - ✓ Eliminate the unnecessary
  - ✓ Reboot hard/soft
- Be a researcher
  - ✓ Use your on-line resources
  - ✓ The help menu is your friend
- Know your starting point
  - ✓ Identify what is working before you tackle  
what is not



# Fundamental Rules of Problem solving

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TROUBLESHOOTING

- Know when to give up
- Don't let your pride get in the way of help
- Keep your cool,  
It is only a computer...



# Systematic Troubleshooting

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Follow flow charts

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## Preventative Maintenance

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“...an ounce of prevention is worth a pound of cure...”

Regardless of the OS you should perform routine maintenance if your system is to perform correctly.

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# Tips for Common Hardware Problems

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- Static Electricity
- Dust, Food, Drinks, Pet Hair
- Power Surge Protector
- UPS



# Tips for Common Software Problems

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- Recovery/Rescue Disks
- Software Updates
- System Utilities
- Backups, Backups, Backups!



## Recovery/Rescue Disks

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- Easy to create!
- Allows you to bypass the hard drive if something has gone wrong.
- Allows you to evaluate and run repair utilities on your hard drive.
- Allows you to possibly avoid reinstalling the Operating System.



# Software Updates

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TROUBLESHOOTING

- Easy to do! Most can be set up automatically.
- Keeps your operating system and hardware device drivers up to date.
- Repairs security holes before they can be exploited.
- Available for most software applications.
- Mac: <http://maccentral.macworld.com>
- Windows: <http://windowsupdate.microsoft.com>



# System Utilities

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- Easy to do!
- Improve system performance by defragmenting your hard drive.
- Cleans up unnecessary files.



# Backups, Backups, Backups!

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- VERY IMPORTANT!
- Protect your most critical data!
- Easy to do with a CD-RW or Zip drive!
- Transfer data from one computer to another.
- Easy to recover lost data from a fresh install of the operating system or a bad hard drive.
- Free up space on a smaller hard drive.



# Protecting Your Computer With Software

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- Anti-Virus Software
- Software Firewalls
- Spam Email
- SpyWare



# Virus, Trojan Horse, Worm - Definitions

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**Virus** *n.* A cracker program that searches out other programs and `infects' them by embedding a copy of itself in them, so that they become Trojan horses.

**Trojan Horse** *n.* A malicious, security-breaking program that is disguised as something benign, such as a directory lister, archiver, game, or even a program to find and destroy viruses!

**Worm** *n.* A program that propagates itself over a network, reproducing itself as it goes.



# Anti-Virus - Protect Yourself

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There are ways to protect yourself with commercial software. It is worth the money!

- Norton AntiVirus by  [symantec.com](http://www.symantec.com)
- VirusScan by  [mcafee.com](http://www.mcafee.com)

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# Windows Anti-Virus Software

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But why spend the money? There are free anti-virus software packages for Windows available on the web.

- AVG Anti-Virus System by   
(<http://www.grisoft.com>)




- Avast 4 Home Edition by   
(<http://www.asw.cz>)



# Windows Anti-Virus Software

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These are also very good, but do not scan incoming email:

-  **AntiVir**<sup>®</sup> Personal Edition by   
(<http://www.hbedv.com>)
-  **bitdefender** Free Edition Version 7  
(<http://www.bitdefender.com>)



# Macintosh Anti-Virus Software

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There are no free Macintosh Anti-Virus software packages. However, there are other options available.

- Sophos: <http://www.sophos.com>
- Intego: <http://www.intego.com>
- McAfee Virex for OS X:  
<http://www.networkassociates.com>



# Software Firewall - Definition

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Firewalls are programs (sometimes hardware devices) that are designed to protect you and your system from the legions of hackers, crackers, and other evildoers who probe the Internet for unprotected PCs.



# Software Firewalls

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Some good examples of software firewalls - both commercial and free:

- Norton Personal Firewall by  [symantec.com](http://www.symantec.com)
- ZoneAlarm by  free, but Windows only. <http://www.zonelabs.com>



## SpyWare - Definition

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**Spyware** - A general term for a program that surreptitiously monitors your actions. While they are sometimes sinister, like a remote control program used by a hacker, software companies have been known to use spyware to gather data about customers. The practice is generally frowned upon.



# SpyWare

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There are ways to protect yourself - for free!

- AdAware by **LAVASOFT**  
(<http://www.lavasoftusa.com/>)
-  by Enigma  
(<http://www.safer-networking.org>)
- **webroot® Spy Sweeper** by Webroot  
(<http://www.webroot.com>)

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## Spam Email - Definition

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**Spam** vt.,vi.,n. [from "Monty Python's Flying Circus"] **5.** To mass-mail unrequested, identical or nearly-identical email messages, particularly those containing advertising. Especially used when the mail addresses have been culled from network traffic or databases without the consent of the recipients.



# Spam Email - Protect Yourself

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COMPUTER TROUBLESHOOTING

- Read the fine print! Do not give permission to sell or share your address.
- Do not open email from people you do not know!
- Use your spam filters!
- Do not remove yourself from lists you did not subscribe to.
- Verify before sending - Real or Urban Legend?  
(<http://www.snopes.com>)



# Buying Hardware & Software

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If you need to replace a piece of equipment or purchase some software, it is very important to do research before making the purchase.

Our recommendation is to go to your favorite search engine (<http://www.google.com>, <http://www.yahoo.com>, <http://www.ask.com>, etc.) and search for reviews of the products you are interested in.

Several example sites are provided on the next slides.



# Software Reviews

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## Anti-Virus Software:

- <http://www.hackfix.org/software/antivirus.html>
- <http://www.pcworld.com/howto/article/0,aid,113462,00.asp>

## Software Firewalls:

- <http://www.firewallguide.com/software.htm>
- <http://www.pcworld.com/howto/article/0,aid,111124,00.asp>

## Spyware & Anti-Virus Software:

- <http://www.spyware-review.com/index.html>
- <http://www.pcworld.com/reviews/article/0,aid,110654,00.asp>



# References

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<http://www.internet4classrooms.com/manual.htm>

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