

Newsletter: Using Computers in Chemical Education Fall 2002

ACS Division of Chemical Education :--Committee on Computers in Chemical Education

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PowerBook G4 and Jaguar

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by Brian Pankuch

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Specific PowerBook info click on the various links on this Apple page)

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A number of features strike me when I turn on the PowerBook (800 MHz G4 processor with Velocity Engine, 1GB memory) next to my 20 inch monitor connected to the desktop system. The 15.2 in diagonal PowerBook screen looks to be similar size to 20 in monitor. The PowerBook display is about 13 in wide and 8.7 in high, the monitor is 15 in wide and 11.5 in high. The monitor weighs 66 lbs plus the computer for about 90 lbs total and takes up a lot of real estate. The PowerBook is 5.5 lbs complete with a much smaller footprint.

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If you prefer a regular keyboard to the built in, you can attach your usual keyboard to the PowerBook with a USB cable. Most of the programs I use have contextual menus in which it is very handy to hit control and click to see what options you have in a particular part of a program that you are using. It is even handier to click a second button on the mouse and see the contextual menu. The second mouse button and scroll control on the Microsoft mouse make it a good choice, despite the Mac mouse being more comfortable and a lot prettier.

The images on the screen are bright and clear. I'm using the latest OS X (10.2) update or Jaguar that I just installed. The installation process is pretty much automatic, unless you do a customized install as I did. You'll be asked to give the computer a name and a password. Since you will be typing this quite a bit you may want to use as short a name and a password as you feel safe with. There is a lot of security built in so you have to identify yourself when you run updates or setup new programs.

Printing

The Print Center printing utility is in Applications->Utilities and will open automatically if needed, but you may want to check settings for different locations. I'd drag it onto the Dock for easy access. I have an HP 970 and an Epson 1270 ink jet printers that are immediately available with no problems when connected directly to the PowerBook. Use Print Center to check that AppleTalk is on, then connect an Ethernet cable to the network and all the printers are shown. All of our network printers, or at least all I've tried work fine. This is a considerable improvement over even 6 months ago when you would have to hunt on the Internet yourself, not always successfully, for printer drivers.

Network

One of the great things about using a portable is that you can use it wherever you are. To facilitate networking at different locations you can setup different configurations for each. For instance I have two configurations at work, one is for direct Ethernet connection to our T1 line, the second is for using the wireless Airport system with the T1 line. You can choose which you want or let the system decide which is currently working best. An interesting side effect occurs that if I'm using PowerPoint on the PB and open Excel or any other program in the Microsoft Office suite on the desktop Mac. After I have entered a few grades an alert opens and tells me I'm not licensed to be running PowerPoint on two machines and it then offers to save the work and then quits. Of course I'm not running PowerPoint on both, but it quits anyhow.

Airport

Most of the PowerBooks come with the Airport card already installed, the Airport base station (it transmits signals) is an extra \$169. This is pleasant in my small office. I can connect desktop and PowerBook systems to the T1 line via Airport so I can easily use the Internet or transfer material wirelessly between the two computers. This is much less work than stringing cables or restringing them when changes are made. If you have an older system that can't use an Airport card you can connect it directly with an Ethernet connection to the Airport base station. I believe up to 20 computers can be linked together this way. All computers are using the T1 line (or modem, etc.) and are 'talking' to each other. Airport can be used with PC's and Macs, but I haven't tried this. At home I have a separate configuration to use the internal

modem, with my commercial IP that can be shared with all the computers connected by Airport.

If you change location just click on Network in system preferences, at the top is a location pull down menu to select the locations you have setup. The PowerBook can also sense several available modes such as Ethernet or Airport and choose whichever is working best.

I occasionally want to use the Internet in lecture. Airport range is about 150 feet, with ideal conditions. Apparently the walls between the Airport base station and my lecture room is not ideal for wireless and the PowerBook loses the signal as I enter my lecture room. So far I can't reach the multimedia room where I'm teaching. Effective range under my conditions is about 60-70 feet.

Another option is to configure a Mac with an Airport card as a base station using the Airport Setup Assistant, find a safe home half way to the multimedia room for the Airport base station. I could have broadband available wirelessly.

Multimedia Room

My lecture is in a Multimedia room where I want to connect the PowerBook to the projector in the ceiling. Here I use the adapter that came with the Mac, I generally setup PowerPoint and QuickTime movies, etc., in my office then put the PowerBook to sleep. I use a couple one inch thick foam pieces about an inch wide under the PowerBook for some protection against bumps as I push the cart to lecture. Then I connect the PowerBook to room electricity and the projector, click to awaken the Mac, which checks the projector and adjusts itself to the correct resolution and I'm up and working. If this doesn't occur automatically you can go to Monitors yourself and adjust the resolution, click detect displays from the monitor pull down menu in the toolbar, to establish contact between the projector and the PowerBook. This is smoother and simpler with fewer adapters and steps I have to do myself than with my 4 year old G3 PowerBook.

FireWire External Drives

If you are doing video work it is a good idea to have an external drive for all the files. FireWire is a very fast protocol that appears as fast as your internal drive. I've got two 80G drives and only one FireWire port. One of the FireWire drives has two FireWire ports so I can run a cable from it to the second FireWire drive. Both can run to a Belkin FireWire hub (with six ports) that is attached to the FireWire port on the PowerBook. Either system

works so you can chain together a huge amount of storage. You can also multiply the 2 USB ports with a Belkin USB hub.

Additional uses of an external drive are: a rapid backup for your user files, and an emergency boot disk. 80 G is a lot of room for the usual type of files, but fills up surprisingly fast with big photo, sound, and video files.

Movies and Photographs

I take video and photographs in the lab with an Canon Elura II MC digital camcorder. The system is versatile so on the fly I can take pictures or video. They both go to the same cassette and when the camcorder is attached to the Mac you can have either iMovie (free included with OS X) or Final Cut Pro open automatically. Using iMovie just touch the spacebar and iMovie loads your video and photographs in separate clips. It allows for cuts, saving frames from video or photographs as JPEG or PICT. As an example see the Flash [animation](#) for a buret.

[Harry E.Pence](#) has been explaining for us in his [articles](#) why it is a good idea to keep PowerPoint slides simple. I have a feeling that the same is true for video, but you can add many transitions.

Technical Notes

I've partitioned my hard drives for years and have on the PowerBook also. A number of Apple Engineers have convinced me that the original reasons for partitioning (having a smaller minimum sized file size to save space on the hard drive, etc.) are no longer true, though all I talked to still do partition. At any rate my first suggestion is to leave the system alone if you get a new computer unless you really need to make changes. Apple has designed a very effective file system that is essentially part of the operating system that you can customize. For a number of reasons I didn't and since I had purchased all of the programs I use in OS X form I decided to try not installing OS 9 drivers when I installed Jaguar. BIG MISTAKE! It turns out that Final Cut Pro update for OS X requires that you have the old program installed in the old OS 9 before you can update it. I had many Apple Engineers looking for a way to install OS 9 on my hard drive without going back and reformatting the entire drive. No luck since I didn't install the original drivers no one could find a way. So I had to redo the installation, that is easy, but all the customization I do to make my work more efficient was lost. It turns out that a lot of the troubleshooting programs like Norton can do more from OS 9 so if you reinstall OS X make sure you click the option to install the OS 9 drivers.

For networking the G4 to another computer you don't need a crossover cable just an ordinary Ethernet cable will do.

Although some drawbacks still exist to using a PowerBook as your main machine it is increasingly possible, and keeping a number of machines viably current is more of a chore. Hmmm?

The [Apple Store](#) is a good place to check education prices, special deals, descriptive and technical information about Mac equipment.