

Children Youth Ministry
Student Consultant, Chris Laskowski
Community Partner, Elder Albert Gans

I. Context Analysis

Organization

The Children Youth Ministry is a non-profit organization in the North Side area of Pittsburgh. It was founded in 1992 by Elder Albert Gans and his wife, Sister Sharon Gans. The Children Youth Ministry (CYM) is dedicated to helping children in the community, from preschool to high school. Its mission statement is:

“To offer guidance and a solid foundation to Children and Youth; and to further develop and grow morally, spiritually, and socially.”

Funding for the organization comes from various government agencies, as well as non-profit organizations such as the Child Care Partnership, and co-payments paid by parents for the various programs. Funding is not extravagant, but generally sufficient to meet the needs of the organization. For any large purchases, such as new computer, additional funding must be received. This is typically through proposals and grants.

The organization realized the prevalence of computers in today’s society, and wanted to increase the exposure that the students receive within the programs. However, they lacked any plan to implement this idea, and were not sure how to go about creating one.

Programs

CYM offers various programs, from a day care center, to before and after school programs, to a summer camp. The programs are primarily directed at preschool or elementary school aged children. The programs generally serve around thirty students each. Primarily for the after-school program, Elder Albert would like to use computers to help the students with homework and other tasks.

Staff

CYM has two primary directors, Elder Albert and Sister Sharon, as well as ten other staff members. The directors are primarily responsible for the administrative tasks of the program, and use computers on a simple level, to create documents in a word processor, or other similar tasks.

Technical Environment

CYM currently has eleven computers, donated by various charities. Of these, nine are older Dell Optiplex machines, and two are IBM machines.

The Optiplexes have Pentium I/MMX processors, 16 megabytes of Ram, and a 4 gigabyte hard drive, each. However, only one has a CD-ROM drive, making it difficult to install software. Furthermore, each of these computers has problems with its operating system setup. Currently, two computers simply crash during boot-up, making them unusable. This problem arose due to the fact that there is no security set up on the systems. Students are allowed to do almost anything they want, which often leads to them changing system settings and causing other mischief. However, the Ministry does not have the Windows

98 install CDs, or the license keys, and therefore cannot reformat the machines. Furthermore, students also tend to damage the hardware, such as stealing mouse balls.

There are also two, more powerful, IBM Athlon K6 machines. These have 128 megabytes of RAM and 4 gigabyte hard drives. They both have CD-ROM drives and modems installed, making them somewhat more useful. However, they are both very outdated, and insufficient for the size of the programs.

The computers are currently set up on three tables positioned along the wall of one of the main rooms. This room also functions as the main play area for after school students, making it difficult to supervise or otherwise monitor what children are doing on the computers.

Technology Management and Planning

The organization has no formal technology management process or technology plan in place. They have used outside consultants before, with varying results. There is no one in the Ministry capable of troubleshooting problems. Currently, technology purchasing decisions are made ad hoc by Elder Gans, and there is no one responsible for maintaining or repairing the systems.

Information Management

There is a lot of information CYM must track to fulfill the requirements of its various grants. For example, it must know who is enrolled in each program and how often they attend. Expenditures and revenues must be itemized and recorded. Meal menus must be tracked for nutritional value.

Currently, the information management approach is an ad hoc mix of writing things down and typing them into Word documents. Information that is stored electronically is simply kept in flat files, without any form of analysis or tabulation automation. There are no software packages or information systems used to assist with recording and collating data. Information is kept either in folders in the administrative office, or on the administrative computer. It is not transferred electronically or otherwise. There is no backup system in place for the electronic data, other than printing hard copies.

II. Consulting Objectives

Consulting Objective 1: Increase CYM's Record Keeping Capability

Objective: To increase the efficiency of record keeping at the CYM by teaching Excel to Elder Gans.

The Ministry must keep track of various records, such as student attendance, financial information, and donor records. The current tracking methods usually involve either handwritten notes or text files. This leads to lost or difficult to find records, and obscure data. For example, at one point Elder Gans had a difficult time interpreting the handwriting of one of the staff members, on a roster sheet. He has expressed an interest in learning a more structured way of organizing data.

The consulting task will be to teach Elder Gans the basic use of Microsoft Excel. Excel is more than sufficient to meet the needs of the organization, and is also flexible enough to let them store many types of data. In addition to simply creating spreadsheets, Elder Gans will also be taught how to save them and retrieve them from the hard drive for later reference.

Approach:

1. Research various Excel tutorials, reference manuals, and online information sources, to find a collection of information on Excel that Elder Gans can use on his own time.
2. During the weekly session, introduce Elder Gans to the basics of Excel, and anything he would need for general use, including but not limited to cell references, functions and formulas, sorting, and filtering.
3. Show Elder Gans how to save files onto the hard drive, and how to later retrieve them.

Expected Outcomes:

1. Elder Gans will show a demonstrated ability to use Microsoft Excel, including the functionalities listed above.
2. Elder Gans will have created a spreadsheet to replace some existing paper record.
3. Elder Gans will have shown the ability to later on retrieve the spreadsheet to update it.

Consulting Objective 2: Expand Technical Capabilities for Educational Programs

Objective: To provide Elder Gans a framework for how to proceed with purchasing and installing new computer for the CYM.

Elder Gans understands the current importance of computers in work and society. He wants to give his students a broader exposure to computers in their early development, to help them in their future education and careers. However, CYM currently only has a few computers, all of which are slow and outdated, and lack the capacity for serious expansion or upgrading. Elder Gans would like to replace these systems with new ones, direct from a vendor. Buying computers from a vendor, rather than obtaining used ones from a charity, will provide the organization with technical support and warranty plans, making it easier to maintain the investment in upcoming years.

Elder Gans would like to purchase twelve new computers, as well as the relevant accessories to go with them, such as office furniture. However, the organization currently does not have the money to go ahead with this. They are currently seeking funding.

The consulting task is to develop technology plan that the organization can use as a blueprint for what to do once they acquire funding. The consultant will research the costs and features of available hardware and software, and make a recommendation as to what the organization should purchase. Furthermore, the plan will also document the steps needed to set up the computers once they arrive.

Approach:

1. Work with Elder Gans to discuss the needs of the organization, to understand what computers and other purchases are needed.
2. Research the prices of low-end computers from various vendors, and make recommendations as to which vendor and features should be used.
3. Document the steps necessary for physically installing the computers, including designing a desk layout which will maximize the surveillance capacity of the staff members.
4. Document the software setup requirements, including security and user privileges.
5. Assist Elder Gans with the defining the requirements for future technical help, to assist with the installation of the computers, including offering several sources where such help can be found.

Expected Outcomes:

1. A list of recommended purchases will be compiled, including a total price that the organization must raise.
2. A technology plan will be created and documented, for what to do after the computers are purchased.
3. Elder Gans will demonstrate an understanding of the technology plan.

III. Outcomes and Recommendations

Objective 1 Outcome: Successful Demonstration of Use of Excel by Elder Albert Gans

The first consulting task was to teach Elder Gans to use Microsoft Excel to assist him with task organization and management. This was accomplished by first stepping him through the basics of Excel and the various features it offers, and then working through case examples.

Since the start of the task, Elder Gans has demonstrated the ability to complete the following Excel tasks:

- Create a new spreadsheet, save it, and retrieve it from the hard drive.
- Enter values into table cells.
- Enter formulas into table cell, referencing other cells both relatively and absolutely.
- Enter functions, including SUM and AVERAGE, into cells.
- Copy data and formulas from one cell to others
- Format cells to display data as dollar amounts, percentages, or rounded numbers.
- Resize rows and columns to display data more efficiently.
- Sorting data.
- Print a table.

In order to ascertain Elder Gans' proficiency at the end of the tutorials, a spreadsheet was created for actual use within the organization. The Children Youth Ministry was organizing a field trip for its students to Philadelphia on October 31st. There was a \$15.00 down payment each student had to make, and a \$30.00 additional payment that was to be made later. Originally, this information was kept on a handwritten note tacked onto a message board in the main activity room.

Elder Gans wanted to have a more efficient way to keep track of this. He created a spreadsheet, with column headings for student name, amount paid, and balance due. He entered all the student names, and the amount paid for the appropriate entries. He then entered a formula to calculate balance due, and copied this formula to all the appropriate cells. Finally, he sorted the spreadsheet on balance due, in descending order, to show who still owed money.

With his new knowledge of Excel, Elder Gans will be able to track information more quickly and accurately than with the existing system, increasing the Ministry's information management capabilities. This will reduce the administrative overhead required for the organization, freeing up more of his time for other activities, such as working with children. It will also mitigate several hassles related to paper records, such as losing sheets of information, or difficult to interpret handwriting. Finally, using Excel will lead to the creation of records that are more accurate and easier to archive, access, and interpret. This

will, in the long run, allow the organization to better understand they spend money and allocate other resources, to better enable them to plan for the future.

Recommendation: Further training in Microsoft Office products

While it has already proven to be useful, the training covered is only a brief overview of everything that Excel can do. Furthermore, the other products in the Microsoft Office suite, such as Word or PowerPoint, also have many powerful capabilities. Word is already used by the CYM for word processing, but it has many other capabilities, such as desktop publishing, which can be used to create more aesthetically pleasing documents. PowerPoint is used for preparing presentations, such as proposals for funding given to a grant committee. The knowledge of these products would be useful in the administrative aspects of the CYM. Therefore, it is recommended that Elder Gans pursue further training in these products.

Two ways are apparent as to how to accomplish this. First, Perry High School is very close to the Ministry, and undoubtedly there are students there who are familiar with these products. By contacting the teachers responsible for computer based classes at the school, Elder Gans may be able to get in touch with students who would be willing to continue the Office training, either as part time work, or possibly for extra credit in computer classes at the high school.

Second, there are many academic institutions and community centers in the area, many of which offer computer classes for adults. Such opportunities might also be a way to continue the training. A primary source for such classes may be the Community College of Allegheny County (CCAC). CCAC offers a lifetime learning program, for adults who want to take college classes to broaden their knowledge. Information on this program can be found at http://www.ccac.edu/ll_learn/.

Objective 2 Outcome: Delivery of Plan on Purchase and Installation of New Computers

Second, Elder Gans wishes to purchase new computers to replace the existing systems the Ministry already has. However, simply buying 12 new systems without any further plan will lead to unnecessary difficulty and cost in setup, and will quickly lead to the same problems encountered before, such as students sabotaging the software or physically damaging the systems. While the CYM is working on securing the funding, the consultant prepared a plan for what to do once the funding is secured. Through speaking with Elder Gans regarding what he would like to purchase, as well as through observing the technical knowledge of the center and the physical space available, a written plan was prepared. This plan is provided in the appendix.

First, a list of recommended items to be purchased was prepared. This includes 12 computers, including monitors, and the various assorted standard peripherals. Furthermore, new desks to hold the computers were also included. Finally, additional funding requirements were also included for the future purchase of software. While the standard suite of productivity software will come with the computers, the Ministry may, in the future, wish to purchase other software, such as educational games or language tutors. This additional funding will make that possible.

Second, the physical layout of the computers was prepared. In the past the Ministry has had problems with students vandalizing the computers, such as stealing mouse balls. It was decided that the best way to combat this was to provide constant supervision. Therefore, a floor plan was set up, where an area of the room would be set aside specifically for the computers. The computers will be arrayed along three walls, with four machines at each wall. In the center of this U-shaped area will be a desk where an adult supervisor will sit. From this desk, the adult can see what all the children are doing, in order to prevent

any mischief. Furthermore, for physical security, blinds will be installed in the windows, to prevent passersby from seeing the brand-new equipment.

The primary software for these systems will be factory installed. The main setup steps Elder Gans will be responsible for is to create a student user account on each machine, with very restricted access, to prevent students from changing settings and making the machines inoperable. The steps for how to proceed with this are also outlined in the documentation.

With the technology plan, the CYM will have an outline of how to proceed with their plans. A list of equipment to buy, and a set of instructions on what to do with it once it arrives, will alleviate or at least mitigate many of the problems they would encounter otherwise.

With the new or improved computers, the Ministry will be able to install a broader range of software on the machines. This will increase their usability to the students, who will have an expanded ability to do their homework or other tasks. New computers may also attract more users to the center, increasing the impact on the community.

Recommendation: Finding outside assistance for installation and maintenance

While the instructions on system setup are provided in the prepared technology plan, they only cover the basic setup. More intricate setup may be beneficial to the Ministry's needs, but the instructions for such steps would go beyond what can be explained in a simple document. It is recommended that Elder Gans hire a person familiar with Windows 2000 and XP administration to assist him with the configuration. The easiest source for such help would be Perry High School, where some students are most likely familiar with the necessary instructions. Elder Gans can be put in contact with qualified students through the high school instructors responsible for computer classes.

While it may seem easier to simply purchase all 12 computers and set them up at one time, this is not necessarily the best approach. That many computers may not be needed, or the initial configuration purchased may not be ideal for the organization. The safer approach would be to simply purchase a handful of computers initially, such as simply 4, set those up, and see how they work out. This will give the organization some experience with setting up and maintaining these systems, and well as to verify that the security procedures, both physical and software, outline in the provided documentation is sufficient. Once the organization has experience in setting up and maintaining these systems, as well as verified that the plans provided are adequate for their needs, then it should proceed with the further purchase of the systems.

Furthermore, even after the computers are installed, further upgrades and maintenance will be necessary, and will place a heavy burden on the existing staff. It is recommended that Elder Gans look into the possibility of hiring additional part time help to assist him with these tasks. A person for this position should, at the minimum, have experience with administering and maintaining Windows 2000 or XP machines. Experience with installing and maintaining networks and broadband connects may also be useful. Finding a person who is willing to work directly with the students, teaching them to properly use the computers, will have additional benefits.

Such an employee may be found through various methods. One easy place to look is at local schools, such as Perry High School, or colleges, such as Carnegie Mellon University. Alternatively, want ads can be placed in local papers, as well as on job websites. Students will generally be less expensive to hire than professionals. Typically, a student in such a role would make \$10-\$15 an hour, while an adult with experience would make \$20-\$25. Compared to the cost of not maintaining the machines, and given the

skills such a person would bring to the organization, these costs are not very high, especially if the person is only hired for a few hours each week, such as for only one or two days a week.

IV. Additional Recommendations

Recommendation 1: Create a Plan to Use the Technology in Educational Programs

It is often easy to look at technology as an end of itself, rather than a tool to achieve further success. While the consultancy has helped the Children Youth Ministry acquire more technology, how this technology will be used to further its mission should be investigated further. Having the computers available for students to do homework and other tasks is definitely beneficial, but the Ministry can go much further. These computers can also be loaded with educational software to help the students develop and learn. Or, training programs may be started to teach the students how to better use computers, and how to perform other tasks, such as setting up web pages. While such programs have been attempted in the past, they have had limited results. Various reasons were given for this, such as lack of commitment from the personnel hired. Carefully reviewing the reasons for the lack of success in the past, and finding ways to mitigate the risks in the future, can lead to a successful resurrection for these programs. For example, if the previous staff members failed to meet their commitments in regard to these programs, finding replacement with more experience and references to replace them would be immensely beneficial, even if these new employees are more expensive to hire.

As discussed earlier, outside assistance, such as new staff members trained in computer use and education, can be an invaluable resource to pursue this further. However, if that is not possible, a general guideline for how to proceed can be adopted here. The leadership of the CYM, along with the relevant staff members, should analyze their specific goals for the use of computers within the programs. There are many possibilities for what the computers can be used for. Educational resources, easily found on the web, can provide hints and guidelines as to how to incorporate this technology. For example, the site <http://psrtec.clmer.csulb.edu/virtualp/computersref.html> provides many links to resources on using technology in education.

One possible use of the computers is as educational tools, through the use of educational game programs, or “edutainment”. Again, many resources can be found on the web to assist the CYM with choosing titles appropriate to their needs. For example, the discovery channel provides reviews on games at the site http://school.discovery.com/parents/reviewcorner/games/games_formats.html#cd. Once staff members choose the titles they would like, they can be purchased and installed for the children’s use. Several copies of each program may need to be purchased, as generally, you must have the CD-ROM disc in the drive to use a product. However, it may be safe to buy one copy initially, and buy more depending on how large the demand for it is among the students. Installation of software is usually fairly simple, requiring only the launch of the setup program, and even that is usually started automatically when the disc is inserted into the CD-ROM drive. Any problems can be solved either through the troubleshooting section of the manual, or by calling technical support for the product.

Other possible uses for the computers include accessing educational websites, and tutorials on the use of the products in the Microsoft Office suite, including Word and Excel.

Similarly, it is often assumed that acquiring new technology is always good. For example, one idea that has been thrown around is that of setting up a network, either wired or wireless, for the computers at the

Ministry. However, the costs associated with such a plan will make it unnecessarily expensive and difficult to maintain. Using a network for file sharing is not something the CYM needs to do. Using a network to share a broadband internet connection may help. However, this would incur monthly broadband charges, and it would mean that the students would have greater and less restricted access to the internet, making it harder to monitor and control their activities. Finally, maintaining the setup in the future would also add difficulty and cost for the organization. This plan, as compared to using dialup connections when needed, is not necessarily the best path to take, however, technological or forward-thinking it may seem. While setting up a network or installing a broadband connection may seem like a good idea, based on the results of this consulting project, these systems would not be recommended as goals the CYM should pursue.

As has been mentioned several times, the high school near the Ministry may be an excellent resource for help. Not only students who are proficient with computers, but students who are simply interested in working with children, may be used by the Ministry in their activities, either as inexpensive labor, or possibly with the assistance of a for-credit community service program with the high school. It is recommended that Elder Gans meet with the administration of the high school, such as the principal or the personnel responsible for computer training and usage, to discuss such opportunities.

About the Consultant:

Chris Laskowski is a senior in the Information Systems Program at Carnegie Mellon University, graduating in December of 2002. After graduation, he intends to pursue a career in technical consulting.

V. Appendix: Plan for Purchasing and Installing Computers

Step 1: Choosing Equipment to Purchase

When buying new computers, it is generally advisable to go with a reputable and well-known vendor. This will give the security of knowing that the products are of a reasonable quality, and that technical support will be available if necessary. There are several vendors which should be considered: Dell, Gateway, HP-Compaq, and IBM.

A set of minimal requirements for a computer was defined, based on discussions with Elder Gans. In general, a computer should have at least a Pentium-III 800 megahertz processor, 128 megabytes of RAM, a 10 gigabyte hard drive, and an installed CD-ROM drive, or similar. They should also come preinstalled with Windows 2000 or Windows XP Professional Edition, mainly due to the security features these operating systems provide. Other peripherals, such as modems and mice, are assumed to be standard on all computers sold today. The sample computers below were chosen with pre-configured options, trying to meet the minimum requirements while minimizing price. Bulk purchase rates and educational discounts were not explored in detail. However, they may be available. Elder Gans is advised to contact customer support prior to making a purchase, to investigate these options. Please note that these prices may reflect special deals available only at the time they were investigated. The prices and configurations are subject to change.

Dell Dimension 2350: http://www.dell.com/us/en/dhs/offers/specials_m_dimen2350.htm

- Celeron processor, 2.0 gigahertz
- 128 megabytes RAM
- 30 gigabyte hard drive
- 15" monitor
- 40x/10x/40x CD-RW (re-writeable) drive
- \$609

Note: A Celeron processor is an inexpensive version of the Pentium processor. While it is not as fast as a normal Pentium, a 2.0 gigahertz Celeron is more than adequate for the organization's needs.

Gateway 300s: http://www.gateway.com/home/prod/hm_300svsp_proddetail.shtml

- Celeron processor, 2.0 gigahertz
- 128 megabytes RAM
- 40 gigabyte hard drive
- 15" monitor
- 48x/24x/48x CD-RW drive
- \$499

Compaq Presario 6300:

Note: The following three lines must be entered as one line in the web browser to access the page:

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http://www.shopping.hp.com/cgi-bin/hpdirect/shopping/scripts/home/  
store_access.jsp?template_type=computer_store&landing=desktops&category=  
compaq_presario&aoid=1432
```

- Celeron processor, 1.4 gigahertz
- 128 megabytes RAM
- 40 gigabyte hard drive
- monitor sold separately (allow an additional \$100 per system for monitor purchase)
- 48x CD-ROM drive
- \$399

IBM NetVista A Series:

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http://www-132.ibm.com/webapp/wcs/stores/servlet/CategoryDisplay?catalogId=-  
840&toried=1&categoryId=2286441&langId=-1&dualCurrId=73
```

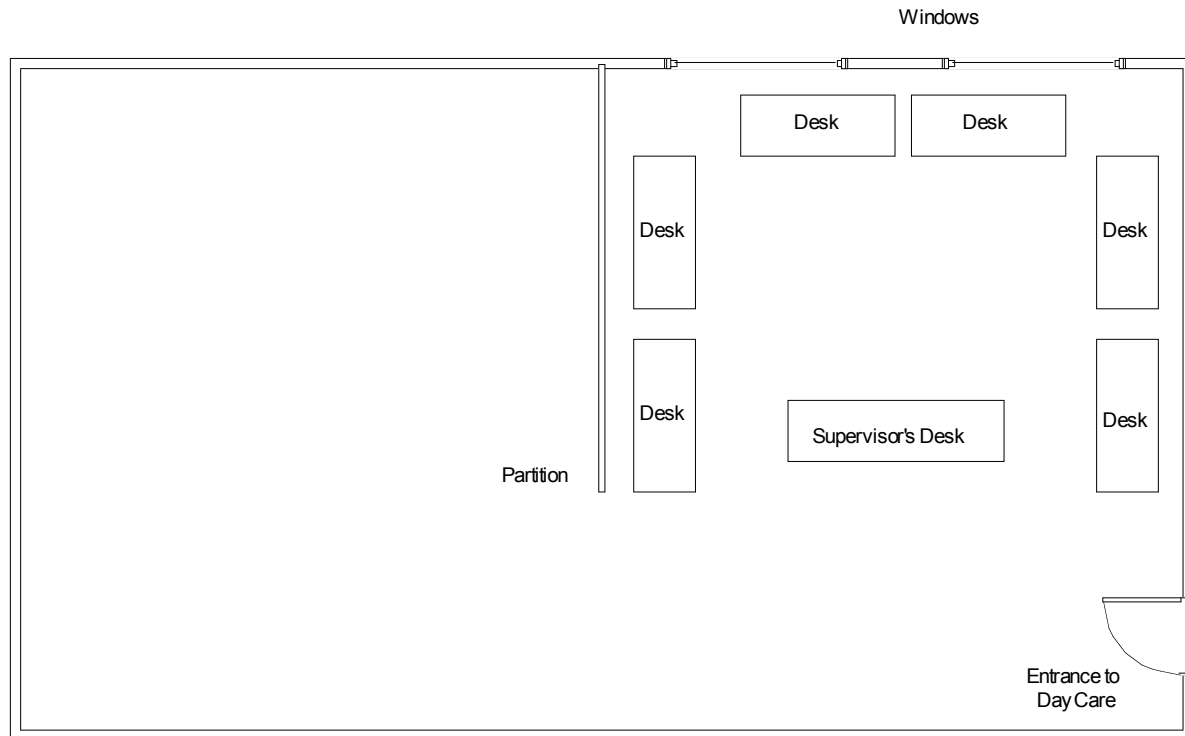
- Pentium 4 1.8 gigahertz
- 128 megabytes RAM
- 40 gigabyte hard drive
- monitor sold separately (allow an additional \$100 per system for monitor purchase)
- CD-ROM drive (speed not specified)
- \$599

Of these systems, the Gateway product seems to be the best option, based on price and features. However, based on special offers and discounts offered intermittently, the prices may change frequently. It is recommended that the systems are examined again prior to purchase, to see which deal is best then.

Step 2: Installing the Equipment

After the computers and the relevant supplies, such as desks, have arrived, it will be necessary to set them up. Installing a computer is fairly simple. It is only necessary to plug both the computer and the monitor to the power outlet, connect the monitor to the computer, and connect the keyboard and mouse to the computer. The systems will come with instructions on how to do this.

The important task here is to arrange the computers in such a way as to make it easy to monitor what the children are doing. As discussed, the optimal method to achieve this is to put the computers in a semicircle around a central desk, at which a supervisor will sit. If there are two computers per desk, then six desks will be needed. Given the layout of the facilities, the optimal way to proceed with this is to put two desks along the wall shared with the day care center, two desks under the windows, and two desks in the middle of the room, parallel but opposite to the ones by the first wall. Movable wall partitions can be set up to create a wall enclosing this layout. A floor layout is provided on the following page.



The windows should have blinds installed to prevent people from seeing the equipment from the street. From the supervisor's desk, the person assigned there can easily monitor what everyone is doing, to stop any malicious activity quickly.

Step 3: Setting up User Accounts

The computers will come with an administrator account activated. The password will be set for this account during the initial load process. This account is fine for use by staff members. However, students should not have access to it, to prevent mischief. Instead, a student account should be set up on each machine. There does not have to be a separate account for each student – one student account per machine will suffice, as the students can share it.

To set up a user account, log in as the administrator. Click on the **Start** menu, and go to **Control Panel**. From here, double click on **Administrative Tools**, and then double click on **Computer Management**. Select the **Local Users and Groups** option by clicking on it, in the left side of the window. Then, from the menu, select the **Action** menu, then select **New User**. Enter the user information as displayed. Make sure that "User must change password at first log in" is NOT selected, and "Password never expires" is selected. For the username and password, enter something easy to remember, such as "student" for both. Once you have finished entering these fields, click on **Create** and the account will be created.