MacBook Care and Handling



Take good care of your MacBook and it will take care of you!

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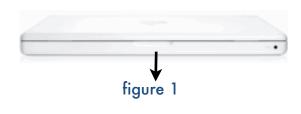
Getting to Know Your Computer

The Start Up Process

Your MacBook is sitting in front of you. What do you do to get it up and running? First, let's open it. The latch (figure 1) is magnetic. Simply pull up on the top case to open it up.

The MacBook is hinged on the back. Adjust the screen to the best viewing angle, but be careful not to open past the designed stopping point.

Now, turn it on. The power switch is located on the upper right of the keyboard (figure 2). Press it. You'll hear the famous Apple "chime" which indicates the computer is starting up. It may take as long as a minute before you see the next screen, so don't get impatient. If the computer was already turned on when you pushed the button, it will come up in a few seconds without the chime. You'll see several different screens as your machine starts up.





Ports on MacBook

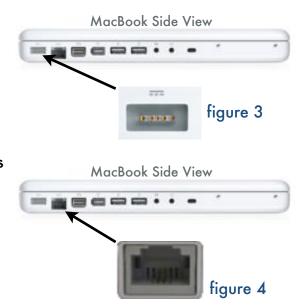
The left side of your MacBook contains all the ports you'll need to connect digital cameras, camcorders, printers, video projectors, science probes, iPods, etc. Let's look at each one a little closer working from left to right.

Charging Port

The charging port (figure 3) is the first port. We will discuss this port in detail on page 8.

Ethernet Port

The second port from the left is the Ethernet port (figure 4). This port is used to hardwire your computer to your school network. As your computer has a wireless card, this port may not normally be used at school. This connection can also be used at home if you have a small network or, perhaps, a cable or DSL modem.



Video Port

The third port from the left on the MacBook is the Video-Output port (figure 5). The Video-Output port allows you to connect a display or projector with a DVI or VGA port.

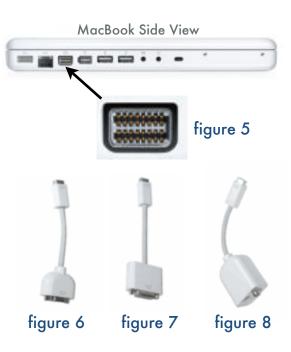
Use the Apple Mini-DVI to DVI Adapter (figure 6) (sold separately) to connect your MacBook to a DVI monitor or projector. Use the Apple Mini-DVI to VGA Adapter (figure 7) (sold separately) to connect your MacBook to a VGA monitor or projector. You can also display images on a TV, record images on a VCR, or play DVDs on your TV by connecting an Apple Mini-DVI to Video Adapter (figure 8) (sold separately) for use with composite and S-video connectors.

When an external monitor or TV is connected, you can either have the same image appear on both the built-in display and the external monitor (known as "video mirroring") or use the external monitor to extend the size of the Mac OS desktop (known as "dual-display" or "extended desktop mode"). "Extended desktop mode" allows you to display a single document or application across multiple monitors or to use each monitor to display a different document or application.

By default, your MacBook starts up in dual-display mode. Press the F7 key to switch between dual-display and video-mirroring modes.

FireWire 400 Port

The fourth port from the left on the MacBook is the FireWire 400 port (figure 9). With FireWire, you can easily connect and disconnect external high-speed devices—such as high definition video (HDV) or digital video (DV) cameras and hard disks—without restarting your computer ("hot swappable"). To "un-mount" a FireWire device, drag the device icon to the "Eject" (figure 10) on the Dock, which is what the Trash Can icon turns into when you move the device icon over it.







USB Ports

Fifth and sixth from the left on the MacBook are the USB 2.0 ports (figure 11), which you can use to connect many types of external devices, including printers, scanners, digital cameras, game pads, joysticks, and keyboards. USB 2.0 is also "hot swappable" and can be as fast as FireWire. After you connect the device, it is ready to use. In some cases, you must remember to "un-mount" your device when you are done using it.



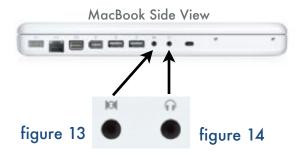
Modem Options

The MacBook does not contain a built-in Modem port. However you can use the Apple USB Modem (figure 12) (sold separately) to easily connect to the Internet using your dial-up service. Small and light, it connects to the USB port on your MacBook.



Audio Port

The seventh and eighth ports on the MacBook are the Audio Ports. The audio-in port (figure 13) allows you to connect external microphones and other audio equipment. The audio-in port does not provide power to a connected device, so you must use self-powered devices. The audio-out port (figure 14) allows you to connect external powered speakers, headphones, 5.1 surround systems, and other sound output devices.



Security Slot

The last slot on the MacBook is the security slot (figure 15). You can purchase a security cable lock to protect your MacBook. With a lock, you can secure your computer to a desk or table.



Other Hardware Features

iSight Camera

The MacBook has a built-in iSight camera (figure 16) at the top of the display bezel. Just perfect for video conferencing with others using the included iChat AV application or making a movie for a class project. The camera indicator light will turn green (figure 17) when the camera is in use and will turn off (figure 18) when it is not.

Apple Remote & Built-in infrared (IR) Receiver

Your Apple Remote (figure 19) works with the Front Row interface and the built-in infrared (IR) receiver (figure 20), which is located on the bottom right of the front side on your MacBook. Use the Apple Remote to open Front Row and work with iTunes, iPhoto, iMovie, DVD Player, and more, from across the room.

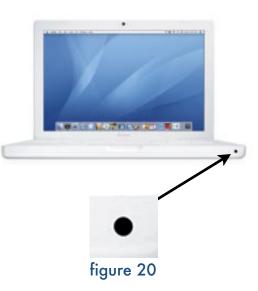
Use your Apple Remote to:

- Open Front Row and navigate through the Music, Photos, Videos, and DVD menus.
- Adjust the volume of a song, play or pause a song, or skip to the next or previous track in iTunes.
- Play a slideshow of any of your photo albums in iPhoto.
- Play a DVD in your optical drive with DVD Player.
- Navigate Keynote presentations.
- Sleep or wake your MacBook.

Sudden Motion Sensor Technology

Your MacBook has Sudden Motion Sensor technology, which helps protect the hard disk from damage if the computer is dropped or shaken. Sudden Motion Sensor protection doesn't affect hard disk performance during regular MacBook operation. Occasionally, unusually strong vibrations might activate the Sudden Motion Sensor technology at a time when your MacBook is writing or reading data intensively (such as when playing or recording video or audio). If you notice dropped video frames, freeze frames or sound elements, make sure that your MacBook is in a stable environment without vibration or abrupt movement.





Your Trackpad

MacBook Trackpad

Although the Trackpad (figure 21a) can be used instead of a mouse, a USB mouse can be plugged into either of the USB ports and is configurable through the System Preferences pane.

To move the pointer, move your finger along the Trackpad. How far the pointer moves onscreen is based on how quickly you move your finger across the trackpad. To move the pointer a short distance, move your finger slowly across the trackpad. The faster you move your finger, the farther the pointer moves onscreen.

To select an item, click the button below the track pad (figure 21b). To open an item, using the button below the Trackpad, double-click on the icon for item you wish to open.

The MacBook's trackpad can sense if you are using one finger or two. You can scroll vertically or horizontally in a window that has scroll bars, by moving two fingers on the trackpad. In addition to using the trackpad button, you can use your finger to click and double-click directly on the trackpad. You can turn these options on or off and other trackpad options in the Keyboard & Mouse pane of System Preferences.

Tips for Using the Trackpad

For best results when using the trackpad:

- Use only one finger, except when the scrolling feature is turned on and you want to scroll.
- Do not use a pen or any other object to scroll.
- Keep your finger and the trackpad dry. If the trackpad becomes moist from humidity or condensation, gently wipe it with a clean cloth before you use it.
- Never use any kind of cleaning solution on the trackpad.



figure 21

When an Application Doesn't Respond

On rare occasions, an application might "freeze" on the screen. Mac OS X provides a way to quit a "frozen" application without restarting your computer. Quitting a "frozen" application might allow you to save your work in other open applications.

To force an application to quit:

- Choose Apple (*) (figure 22) > Force Quit from the menu bar or use the keyboard shortcut by pressing Command (*) -Option-Esc. The Force Quit Applications dialog (figure 23) appears with the application selected.
- 2. In the confirmation dialog, click Force Quit. The application quits, leaving all other applications open. If you need to, you can also restart the Finder from this dialog.





figure 23

Resetting Your Computer

If your computer does not respond and you want to restart it, push the Apple, Control and Power buttons simultaneously (this is known as a "soft reset"). The computer should restart automatically. If that does not work, then press the power button (figure 24) and hold it down for ten seconds (this is known as a "hard reset"). You'll then have to release and push the power button again to restart your MacBook. Any unsaved changes to existing files or newly created files will be lost if you restart your computer in either manner.



figure 24

Your New Battery

MacBook Battery and Power Adapter

The MacBook battery (figure 25) offers up to 6 hours of battery life depending on configuration and use. Be sure to fully charge your MacBook when you plug it in for the first time. Contact your Tech Lead to ensure you have the latest software as Apple periodically releases updates that may improve system and battery performance.



figure 25

The charging port (figure 26) is the first port on the left side. When the connection is secure, an LED lights up at the head of the Adapter plug. Orange indicates the battery is charging and green indicates the battery is fully charged.

The MagSafe Power Adapter (figure 27) is just that: a magnetic connection instead of a physical one. So tripping over a power cord won't send your new MacBook flying off a table or desk; the cord simply disconnects cleanly away, without damage to either the cord or the system.



Warning: The MacBook power adapter port contains a magnet that can erase data on a credit card, iPod, or other device. To preserve your data, keep these and other magnetic media away

Using Your Battery

from the power adapter port.

When the external power adapter is not connected, your computer draws power from its battery. The length of time that you can run your MacBook varies, depending on the applications you use and the external devices connected to your MacBook.

If your battery charge runs low while you are working, attach your power adapter and let the battery recharge. To replace a discharged battery with a charged one when your computer isn't connected to a power adapter, shut down your computer. figure 27

Battery Life

With a little bit of care, you can maximize the battery life (i.e. the time your battery will run before it must be recharged) and life span of your computer's battery.

A fully charged battery can provide up to six hours of use, dependent upon application usage, network activity, and other system settings. You can check the battery's condition by closing the MacBook cover, turning the device over, and pushing button above the battery level indicator lights (five green LEDs that indicate the condition of the battery).

More green lights indicate more battery charge. One green light indicates the battery needs charging soon. If no lights are visible, the battery is completely drained and the computer will not start up unless the power adapter is connected. It takes up to 4 hours to fully charge a battery. When the power adapter is plugged in, the battery is recharged whether the computer is off, on, or asleep. However, the battery charges more quickly if the computer is off or asleep. When the computer is on, you can monitor the battery charge level using the Battery status icon in the menu bar.

If the battery icon in the Finder menu bar is set to show the percentage of charge, sometimes the battery won't show a full 100 percent charge when the power adapter is attached. This is normal behavior; battery life is maximized if charging is not continuously cycled on and off when the battery's charge capacity is between 95 and 100 percent. When the battery level eventually drops below 95 percent, it will charge all the way up to 100 percent.

Consumables

Consumable parts, such as batteries, are those that are not expected to perform as new for the entire period of the warranty. For example, tires are not expected to provide the same level of performance at the end of a car's warranty as when the car was brand new, therefore tires are expected to provide a maximum level of performance for only a certain number of miles. Batteries, due to their chemical components, are considered consumables and will, over time, lose their ability to hold a charge. A battery that does not hold a charge as it did when it was brand new will not be eligible for warranty replacement, unless those symptoms are caused by a defect in the battery during the first year of usage.

Depletion

A battery is depleted when it has exceeded the manufacturer's specified number of discharge cycles. The number is determined by the manufacturer and is not standardized. However, a properly maintained Apple computer battery is designed to retain up to 80% of its original capacity after completing 300 full charge and discharge cycles. Typically you accumulate these full cycles across many partial discharge cycles, but the end result is that the length of time the battery can hold a charge is reduced. Battery depletion over time and with usage is normal and is not considered a defect. You may choose to replace your battery when it no longer holds sufficient charge to meet your needs.

Standard Maintenance

For proper maintenance of a lithium-based battery, it's important to keep the electrons in it moving occasionally. Apple does not recommend leaving your MacBook plugged in all the time. An ideal use would be a student who uses their computer at school, then plugs it in at the home to charge. This keeps the battery power flowing.

Battery Conservation Tips

The amount of work time your battery can provide before you need to recharge depends on the applications and peripheral devices you're currently using, and the steps you take to conserve power while you work. For the best conservation of battery power, do the following:

- Disconnect bus-powered USB or FireWire devices when they are not in use.
- Quit open applications that you are not using.
- Turn off AirPort or Bluetooth when they are not in use. (Use the AirPort and Bluetooth status icons in the menu bar. If these icons don't appear in the menu bar, you can turn them on in the Network and Bluetooth panes of System Preferences.)
- Remove CD and DVD discs when they are not in use.
- Reduce the MacBook screen brightness using the brightness controls (F1 and F2) on the computer's keyboard when using battery power.
- Set the hard disk to spin down after a short time. In the Energy Saver pane of System Preferences, select the "Put the hard disk(s) to sleep when possible" option.
- Set your MacBook to sleep after inactivity of five minutes or less.

Battery Storage: Pack 'em Up Before You Leave

If you are not going to be using your computer over the warm summer months or for more than six months, here is a tip for storing batteries so they will be ready when you return.

Apple recommends that you remove and store the battery with a 50% charge. If you store a battery when it's fully discharged, it could fall into a deep discharge state, which renders it incapable of holding any charge. Conversely, if you store it fully charged for an extended period of time, the battery may experience some loss of battery capacity, meaning it will have a shorter life. Be sure to store the ejected battery in an air-conditioned room or closet (ideally 71° F or 22° C). If you are storing your computer for an extended period, recharge your battery to 50 percent every six months or so.

Battery Troubleshooting 101 (Intended for Tech Leads)

If your MacBook operates normally when plugged into AC power (wall outlet), but does not operate using a battery, try the following steps, in the order listed, to verify whether the problem is related to the battery or another component of the computer.

1. Ensure the battery is fully charged by using the proper power adapter for your computer. The connectors on power adapters will glow amber(orange) if the battery is accepting a

charge. If the power connector is not glowing, you may have an issue with the AC adapter or outlet.

- 2. Reseat the battery to ensure it is making good, solid contact.
- 3. Reset the System Management Controller (SMC) (see below).
- 4. Place the suspected bad battery in another unit to see if the problem follows the battery. If so, then replace the battery. If not, then the issue is with a component on that machine.

Resetting the System Management Controller (SMC) (Intended for Tech Leads)

The System Management Controller is an integrated circuit (computer chip) that is on the logic board of the MacBook. As the name implies, it is responsible for power management of the computer. It controls backlighting, hard disk spin down, sleep and wake, some charging aspects, track-pad control, and some input/output as it relates to the computer sleeping.

On extreme and rare occasions the settings in the System Management Controller may become temporarily unusable, which can result in operational anomalies with the computer. Examples would be not turning on, not waking from sleep, not charging the battery, or not seeing the AC Adapter, among others.

Resetting the SMC is not intended for resolution of a "freeze" or situation in which the computer is unresponsive. A SMC reset should not be necessary except as a last resort in cases where a hardware failure of the power management system is suspected. Performing a SMC reset returns the MacBook hardware, including NVRAM (Non-Volatile Random Access Memory), to default settings and forces the computer to shut down.

For most situations, a restart is sufficient. If the computer has stopped responding, try the below steps in order; 1, then 2, then 3 and then finally 4. Test in between steps to see if it has worked. If one step works, don't worry about the next, as you're up and running! Only go on to step 4 if you've tried all of the steps listed here and the computer still isn't working.

- 1. Force Quit (Option-Command-Escape)
- 2. Restart (Control-Command-Power)
- 3. Force Shut Down (press the power button for 10 seconds)
- 4. Reset SMC

Once again, only perform a SMC reset on the computer if steps 1-3 did not resolve the situation. If this is the case, see below for instructions on locating the reset button or key combination for your MacBook.

For MacBook computers, you can reset the SMC by doing the following:

- 1. If the computer is on, turn it off.
- 2. Disconnect the AC Adapter and remove the computer's battery.

- 3. Press and hold down the power button for 5 seconds and then release the button.
- 4. Reconnect the battery and AC Adapter.
- 5. Press the Power button to restart the computer.

Calibration of the Battery

You should calibrate your computer's battery for best performance. The battery has an internal microprocessor that provides an estimate of the amount of energy in the battery as it charges and discharges. To get the longest running time from your battery, calibrate it sometime during the first week you have your MacBook and then re-calibrate once every two to three months to keep your battery functioning at its fullest capacity.

Follow these steps to calibrate your battery:

- 1. Plug in the power adapter and fully charge your MacBook's battery until the LED on the power adapter plug changes to green and the onscreen meter in the menu bar indicates that the battery is fully charged.
- 2. Allow the battery to rest in the fully charged state for at least two hours. You may use your computer during this time as long as the adapter is plugged in.
- 3. Disconnect the power adapter with the computer still on and start running the computer from battery power. You may use your computer during this time. When your battery gets low, you will see the low battery warning dialog on the screen.
- 4. Continue to keep your computer on until it goes to sleep. Save all your work and close all applications when the battery gets very low, before the computer goes to sleep.
- 5. Turn off the computer or allow it to sleep for five hours or more.
- 6. Connect the power adapter and leave it connected until the battery is fully charged again.

Important: Repeat the calibration process every two to three months to keep your battery fully functioning. If you use your MacBook infrequently, it's best to re-calibrate the battery at least once a month.

Tip: When the battery reaches "empty", the computer is forced into sleep mode. The battery actually holds some charge in reserve beyond "empty" to maintain the computer in sleep for a period of time. Once the battery is truly exhausted, the computer is forced to shut down. At this point, with the safe sleep function, the computer's memory contents have been saved to the hard drive. When power is restored, the computer returns itself to its pre-sleep state using the safe sleep image on the hard drive.

Your Display

Adjusting Your MacBook Display

Your computer display (figure 28) is adjustable for optimal viewing. In order to prevent damage to the LCD, LCD Bezel or LCD brace, do not open the MacBook past its designed stopping point (figures 29 a & b) where the LCD bezel touches the bottom case.



figure 28



Your Optical Drive

The Optical Drive is located on the right side of the computer (figure 30). It is a slot loading drive mechanism and has no tray to eject. You can play multimedia on CD discs and music from audio CDs; play DVD movies; and write ("burn") music, documents, and other digital files to CD-R and CD-RW discs. If you have a SuperDrive, you can do all of the above plus write ("burn") DVD movies and other information on DVD-R discs.

Important: The optical drive on your MacBook supports standard circular 12 cm discs. Irregularly shaped discs or discs smaller than 12 cm are not supported. Noncircular discs can become lodged in the drive.



figure 30

Inserting a CD or DVD

To install or use software from a CD or DVD disc:

- With the computer turned on, gently insert the disc (with the label facing up) into the drive slot until you feel the drive catch the disc and take it the rest of the way in. You might need to insert the disc nearly all the way before the drive takes it the rest of the way. This is normal.
- 2. When the icon for the disc appears on the desktop, the disc is ready to use.

Note: If you have a Combo Drive, DVD's take longer to mount than CD's. Some DVD discs are two-sided. Your optical drive can read both sides of a two-sided disc.

Ejecting a Disc

To eject a disc, do one of the following:

- Drag the disc icon to the Trash. The Trash icon will change to Eject (figure 31).
- Press and hold the Media Eject (F12) key on the keyboard until the disc ejects.

Allow the disc to fully eject before removing or reinserting it. If you can't eject the disc, quit any applications that might be using the disc and try again. If that doesn't work, restart the computer while holding down the trackpad button.



Sleeping and Shutting Down

When you finish working with your MacBook, you can put it to sleep or shut it down.

Putting Your MacBook to Sleep

If you'll be away from your MacBook for only a short time, put it to sleep. When the computer is in sleep, you can quickly wake it and bypass the startup process. When sleeping, your computer uses very little power and you can leave it turned on for several days without running down the battery.

To put the computer to sleep, do one of the following:

- Close the display.
- Choose Apple (4) (figure 32) and then click Sleep from the menu.
- Press the power button (figure 33) and then click Sleep in the dialog box (figure 34) that appears.



- Press and hold the Play/Pause button on the Apple Remote for 3 seconds.
- The sleep LED will pulse to indicate that the unit is in "sleep mode".



figure 32

figure 33

Warning: Wait a few seconds until the sleep indicator starts pulsing (indicating that the computer is in sleep and the hard disk has stopped spinning) before you move your MacBook. Moving your computer while the hard disk is spinning can damage the hard disk, causing loss of data or the inability to start up from the hard disk.

To wake the computer, do one of the following:

 If the display is closed, simply open it to wake your MacBook.



figure 34

• If the display is already open, press the power button (figure 33) or any key on the keyboard, or any button on the Apple Remote.

Putting Your MacBook Display to Sleep

By default, your machine is set to put your display to sleep when the computer is inactive. The sleep LED will be solid to indicate that the unit is in "display sleep". While in "display sleep", the hard drive is still spinning and all applications are active. You can easily change this setting in the Energy Saver pane of System Preferences.

Shutting Down Your Computer

If you aren't going to use your computer for a day or two, it's best to shut it down. The sleep indicator light goes on briefly during the shutdown process.

To shut down your computer, do one of the following:

- Choose Apple (**4**) (figure 32) and click Shut Down from the menu bar.
- Press the power button (figure 33) and then click Shut Down in the dialog box (figure 34) that appears.

When you shut down your machine, all applications quit, whereas applications can be running, with documents open, when the computer is asleep.

Caring for Your Computer

The MacBook is well built and is a great tool for learning, but it is not a toy!

Remember it is still a computer and like any piece of electronic equipment, it needs to be treated with a certain level of care. There are several things you can do to ensure your computer's operation and offer yourself a trouble-free and rewarding experience.

1) It is portable and you can take it everywhere.

One of the best features of your MacBook is the fact that it is portable. It enables you to take your homework, reports, presentations, games and music wherever you go. When transporting your computer, there are a few simple things you can do to protect it.

- Set up your computer on a stable work surface.
- Keep your computer away from sources of liquids, such as drinks, washbasins, bathtubs, shower stalls, and so on.
- Protect your computer from dampness or wet weather, such as rain, snow, and fog.
- Leave your MacBook in your backpack when you are not using it.
- When you put your computer in your backpack, remember that it is still in there. Don't throw the backpack on the floor, nor use it as a backrest on the bus nor cram it in your locker, etc.
- Keep sand and water away from the computer. As portable as the MacBook is, please don't take it to the beach.
- Do not subject your computer to extreme heat or cold.
- Leaving it in an unventilated car or in the sun may damage the computer.
- If your machine has been exposed to cold conditions for an extended period of time, let it warm up to room temparature before you use it.
- Do not eat or drink while using your computer.
- Close the lid of your computer before carrying it from one location to another. This ensures all mechanical and moving parts are not damaged during transit. Moving the computer with the lid open also makes it more difficult to handle.

2) Remember, it is fun to use and it is a computer.

- Close the computer carefully from center of screen don't slam the LCD shut!
- Be careful not to leave pencils or pens on your keyboard when closing your MacBook.
- Do not use your computer as a folder to store papers.
- Use the computer on a flat, hard, stable surface.
- Do not insert things, especially metal, into any openings of on your MacBook.
- Be Patient! Sometimes computers need to take a few seconds to think so don't start pounding on the keys if response is not immediate.
- Plug-in your computer when you get home from school so that your battery is fully charged for the next day.
- Remember, hard drives do not like to be bounced around and screens will break if enough pressure is applied to them.

3) Cleaning

Follow these general rules when cleaning the outside of your computer:

- 1. Shut down your MacBook, unplug the power adapter, and remove the battery.
- 2. Use a damp, soft, lint-free cloth to clean the computer's exterior. Avoid getting moisture in any openings. Do not spray liquid directly on the computer.
- 3. Don't use aerosol sprays, solvents, or abrasives.

To clean the MacBook screen, do the following:

- 1. Shut down your MacBook, unplug the power adapter, and remove the battery.
- 2. Dampen a clean, soft, lint-free cloth with water only and wipe the screen. Do not spray liquid directly on the screen.

You may also use a mild glass cleaner that contains no alcohol or ammonia. Most office supply stores sell cleaning kits specifically designed for this purpose.

Apple has tested a product called Klear Screen made by Meridrew Enterprises (http://www.klearscreen.com) and found it does not cause any harm to the plastics. This product may not be available worldwide. Information about products not manufactured by Apple is provided for information purposes only, and does not constitute Apple's recommendation or endorsement. Please contact the vendor for additional information.

4) Cables

- Cables should be lined up straight with the connecter when inserting and removing. Be sure to grasp the plug, not the cord, and pull it straight out when disconnecting.
- If your battery isn't charging, do not wiggle the power cord back and forth. Try removing it and inserting it again. If it still doesn't work contact your Apple support person.
- Be careful not to jerk the computer around when cables are attached.
- Be conscious of where your MagSafe Power Adapter is plugged into the wall to avoid tripping over it and ultimately damaging the machine.

5) Theft and breakage

Theft and breakage could become issues if proper precautions are not taken. Your school has or will develop policies to ensure proper use and care of computers. Be sure you familiarize yourself with your school policies before assuming responsibility for a MacBook.

The Apple warranty or extended coverage will provide coverage for defects in materials and workmanship. However, damage resulting from any external cause, such as an accidental drop or spill, is not covered by Apple's warranty. Please refer to your custom AppleCare Protection Plan coverage regarding these types of damage.