PART II: COMPUTER BASICS

THE COMPUTER

The world of computers is exciting and ever expanding. Real beginners often enter this world with trepidation. Our goal is to make this transition painless. In this section, we will introduce the basic parts of the computer. Learning the language of computers is the first step towards understanding how they work and what they can provide. Always remember that our goal is to acquaint beginners with the most basic knowledge, which will enable them to support Indigenous languages with technology. Expanded definitions of technical terms can be found in the glossary at the end of this manual.

Hardware

Hardware is any part of the computer you can physically touch.

The computer consists of five main components:
  a) The Central Processing Unit (CPU internal)
  b) The monitor
  c) The mouse
  d) The keyboard
  e) The speakers

Language choice is part of the right of Indigenous peoples to their own land, to autonomy, and to cultural and economic self-determination.

Hinton and Hale, The Green Book. (4)
The Central Processing Unit (CPU)

You can think of the computer or PC as being similar to a TV. The frame or body, otherwise known as the ‘box’ or ‘tower’, functions as the house for its parts. This includes the hard drive, connecting points for hardware like the keyboard, mouse, phone lines, microphones, connections for speakers and special ports for software like CD-ROMs or floppy disks and more. The ‘CPU’ drives the computer. The CPU is the brains of the computer. Sometimes referred to simply as the processor or central processor, the CPU is where most calculations take place. In terms of computing power, the CPU is the most important element of a computer system.

On large machines, CPUs require one or more printed circuit boards. On personal computers and small workstations, the CPU is housed in a single chip called a microprocessor.

On the front of the PC, you will see a port for a floppy disk, the access ports for CD-ROMs and the Power button.

On the back of the PC, there are the connecting points for hooking the monitor, keyboard, mouse, printer/scanner and phone lines to the computer.
The Monitor

The monitor is the display screen for the work you are doing on the computer. Think of it as the dashboard – the place where everything you need to know for your immediate job is displayed. On the front, you will see an on/off button and other buttons, which allow for adjustments of contrast and brightness and sometimes more detailed changes.

There are two types of monitors available today: traditional and flat screen

Traditional

Flat Screen
Points to ponder when buying a monitor:

The flat screen monitors will soon replace the older models because of special benefits. Monitors are evaluated based on their size, which is measured diagonally across the screen, like a TV. The most popular size is usually a 17” monitor. Dot Pitch is the distance between each pixel (dot) on the screen—the more dots, the sharper the image. You want to buy one with a .28 mm or less dot ratio. The refresh rate determines how quickly the monitor updates the image on the screen—higher rates are therefore better. The best have a refresh rate of 72 Hz (hertz = the number of times per second the monitor redraws the entire screen) or better.

Screen savers appear on the monitor when your computer is on but you haven’t used it for awhile. They were designed to prevent phosphor burn on early computers; now, phosphor burn is not usually a problem for newer monitors, but most people still enjoy having a screen saver.

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**Tribal Rebirth**  
4/6/03 Stephen Magagnini - Bee Staff Writer - San Diego County

At the Pechanga reservation pre-school, Indian boys and girls sing "Ten Little Monkeys Jumping on the Bed" in a language that's 10,000 years old. Native languages die off yearly in the Americas, but the Pechanga Band of Luiseno Indians -- born again with casino profits -- is breathing life into Luiseno, a language on the brink of extinction. Preschoolers speak nothing but Luiseno in school.

http://www.sacbee.com/content/news/projects/nations_within/story/6408828p-7360908c.html

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**The Mouse**

The mouse is similar to a steering wheel – It steers you to the place you need to go on the monitor. It is an input device, which lets you ‘talk’ to your computer. You can also use the keyboard sometimes in the same way, but once you get used to the Mouse, most people find it easier. The mouse is a hand control, which allows you to move and point the cursor – the blinking item on your screen. The cursor is a place-marker, which you move by manipulating the mouse. As you hold the mouse and move your hand, an arrow will appear on the monitor and you can point it to the functions you wish to employ.
The mouse has several controls, which will give you different options. Users simply have to learn to ‘point and click’—meaning choose a target for the arrow and then left click on the mouse to enter the program or to move items on the screen.

When you point the arrow to the menu item you want, you can then choose to make a right click or a left click on the mouse. It is very important to understand how the mouse works and to know what the difference is between ‘right’ click and ‘left’ click functions.

Using the mouse just takes practice!

The Keyboard

The keyboard is another avenue you use to communicate with your computer. The keyboard functions primarily like a typewriter, but also contains lots of hidden functions. Many of the functions you can achieve with the mouse can also be done through the keyboard. Below is a short list of some main keyboard functions:
<table>
<thead>
<tr>
<th>Special Keys</th>
<th>Description and Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alt</strong></td>
<td>The ‘Alt’ key doesn’t work alone – it needs other keys to make things happen. For instance, press the ‘Tab’ key while holding down the ‘Alt’ key causes the computer to switch between programs that are currently running.</td>
</tr>
<tr>
<td><strong>Ctrl</strong></td>
<td>The ‘Ctrl’ (control) key also work with other keys – If you press the ‘X’ key while holding down the ‘Ctrl’ key, you will cut whatever you have selected. You can then press ‘Ctrl’ and ‘V’ and paste the material in a new location.</td>
</tr>
<tr>
<td><strong>F1</strong></td>
<td>The ‘F1’ key is the HELP key – if you press it, it will give you some help with whatever you are working on.</td>
</tr>
<tr>
<td><strong>Esc</strong></td>
<td>The ‘Esc’ (Escape) key allows you to change your mind – and escape or cancel what you are doing.</td>
</tr>
<tr>
<td><strong>Enter</strong></td>
<td>The ‘Enter’ key is your command function – It tells the computer that it is OK to go ahead with whatever you have asked it to do.</td>
</tr>
<tr>
<td><strong>Tab</strong></td>
<td>The ‘Tab’ key works two ways: 1) just like on a typewriter, it jumps to the nearest tab stop you have set and 2) if you are in a dialog box (or online order form), it moves the cursor to the next field.</td>
</tr>
<tr>
<td><strong>Arrow keys</strong></td>
<td>These move the cursor across the screen in the directions indicated</td>
</tr>
<tr>
<td><strong>Delete</strong></td>
<td>You can guess what this does – it erases what you tell it to erase (that is, anything you have selected)</td>
</tr>
<tr>
<td><strong>Backspace</strong></td>
<td>This key erases anything to the left of where you are typing.</td>
</tr>
</tbody>
</table>
### Page Up/Page Down

These keys move the entire view of the page up or down one screen.

<table>
<thead>
<tr>
<th>Page Up Page Down</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Page Up" /></td>
</tr>
<tr>
<td><img src="image" alt="Page Down" /></td>
</tr>
</tbody>
</table>

### Home/End

The ‘Home’ key jumps to the beginning of the text line you are working on and the ‘End’ key, moves the cursor to the end of the text line you are working on.

<table>
<thead>
<tr>
<th>Home/End</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Home" /></td>
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</tbody>
</table>

### Shift

As on any word processor or typewriter, this allows you to make capital letters.

<table>
<thead>
<tr>
<th>Shift</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Shift" /></td>
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</table>

### Caps Lock

This key types all the letters as capital letters, without having to hold the ‘Shift’ key down.

<table>
<thead>
<tr>
<th>Caps Lock</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Caps Lock" /></td>
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</table>

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The goal of a language program must depend on the situation in which the language finds itself.

_Hinton and Hale, The Green Book, (5)_

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The handwritten text is not legible.
The Speakers and Microphones

Speakers are important to understand for the purpose of working with oral language on your computer. New computers have sound capability built into the motherboard; older computers relied on a sound card, which plugged into the motherboard. You will need to connect a pair of speakers or a set of headphones to your computer if you want to hear sound.

The sound capability on your computer (whether it uses a sound card or not) allows for two things: it plays and records digital sounds. When you are working with languages, you can either enter the sound directly using a microphone, in which case the sound can be saved on the computer as a digital sound file, or you can import (enter) sound from an outside source such as an older cassette tape. You have some choices about how to digitize older tapes (see section on digitization below).

Sound ports (or jacks) are sometimes confusing because they all look similar. The following table should help:

<table>
<thead>
<tr>
<th>Port or Jack</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker</td>
<td>The place to connect your speakers or headphones.</td>
</tr>
<tr>
<td>Microphone</td>
<td>Connection for a microphone to record sounds or to use speech recognition software.</td>
</tr>
<tr>
<td>Line Out</td>
<td>This lets you listen to your computer through your home stereo system.</td>
</tr>
<tr>
<td>Line In</td>
<td>You can record a cassette audio CD or radio by plugging in a stereo system into this port (jack).</td>
</tr>
</tbody>
</table>
Other Hardware to Know

Modem

Virtually every new computer has a built-in internal modem. A modem translates computer information into audio tones so that it can be transmitted over phone lines to other modems. Modems can be internal or external.

Internal modems are cheaper than external modems and usually come built into the computer.

External modems plug into the computer’s serial port. New broadband modems usually plug into the USB or Ethernet port. These are different than traditional, older modems in that they transmit information directly, without having to convert it into audio tones, and are therefore much faster. The most common types of broadband connections are DSL or Cable.

Wireless

Your laptop could have a built-in internal wireless network access card which is a form of data transfer that does not use wires or cables. A wireless card has the ability to transfer computer information to the internet and to access e-mails and the internet without being physically connected by cable. Much like modems, wireless cards can be internal or external.

Internal wireless cards usually come built into the computer but you can buy them later and install them into your PC.

External modems plug into the computer’s USB port or they slide into a PCMCIA slot on a laptop and let it communicate wirelessly with other devices. You can use a wireless card in your PC to network without cables or Ethernet port and to connect to the internet if there is a wireless broadcast nearby.

Exercise 1:
1. Study the main components of your computer
2. Identify, open and close the ports on the front of the ‘CPU’
Hard Drive

The hard drive is the computer’s main storage area. This is hidden in the CPU – you can’t see it but you can usually hear it running when you start the computer. External hard drives are also available and normally plug into a USB port. Think of the hard drive as a giant file cabinet with all the files neatly saved in folders. The main hard drive is labeled ‘C’ on your computer (so when someone refers to the ‘C’ drive, which is where most information is stored and saved). Other hard drives are labeled ‘D’ and ‘E’ – these support the storage of additional information if needed and connect to information provided for the computer on CD’s. The ‘A’ hard drive is designated for floppy disks. Modern hard drives can store anywhere from 40 GB to 250 GB (GB = Gigabytes) – which is simply a HUGE amount of information.

Floppy Drive

Most desktop computers have a floppy drive, though many laptops have dropped them. The floppy drive is labeled as the ‘A’ drive on most computers. The floppy drive reads the 3 ½ - inch floppy disks (which aren’t really soft or floppy!). These store much less information than a CD, but are still useful for transferring and storing small documents. Though they will soon be considered relics of the past, they are really cheap and easy to use and transport.

USB Flash Drive

A jump drive - also known as a USB drive, flash drive, keychain drive, or disk-on-key - is a plug-and-play portable storage device that uses flash memory and is lightweight enough to attach to a key chain. A jump drive, which looks very much like an ordinary highlighter marker pen, can be used in place of a floppy disk, or CD. When the user plugs the device into their USB port, the computer's operating system recognizes the device as a removable drive and assigns it a drive letter. Unlike most removable drives, a jump drive does not require rebooting after it's attached, does not require batteries or an external power supply, and is not platform dependent. Platform dependant means it can be used in either Mac or PC. Several jump drive manufacturers offer additional features such as password
protection, and downloadable drivers that allow the keychain drive to be compatible with older systems that do not have USB ports. Jump drives are available in capacities ranging from 128 MB to 2 gigabytes, depending on manufacturer, in a corresponding range of prices.

With a jump drive, data can be retained for long periods when the jump drive is removed from the computer, or when the computer is powered-down with the drive left in. This makes the jump drive convenient for transferring data between a desktop computer and a notebook computer, or for short-term backup of small to moderate quantities of data.

**CD-ROM Drive**

The CD-ROM drive is usually labeled as the ‘D’ drive on most computers. Uses for a CD-ROM drive include:

1) **Installing new programs**: new program software frequently comes in the form of a CD-ROM because of the large storage capacity.

2) Running CD-ROM programs: CD-ROMs offer high quality, multimedia content including music, videos and animation. They are easily searchable and offer vivid displays.

3) Playing audio CD’s: Just like using your home stereo, your computer’s CD-ROM drive will play you latest, favorite CD while you work!

**CD-ROMS**

CD-ROM (Compact Disk-Read Only Memory), are played through the CD-ROM drive and holds a lot of information. Those you want to play, the same as you play in your home stereo, are ‘read only’ – you can not re-record on these. Others, known as CD-R (Compact Disc Recordable) and/or CD-RWs (Compact Disc Re-Writable) can be written on or burned, as the terminology goes. These are the most important to learn to use for the purposes of working with Indigenous languages. Once the native language information is ‘burned’ onto a CD-RW, then it can be permanently produced as a CD-ROM, which can’t be written over.

*Remember:*

**CD-ROM**: Read only, no new information can be added.
Yet more technology for Indigenous languages. Big databases

By Tom Nugent, Special to the Tribune/ October 12, 2003.

EAST LANSING, Mich. -- Drop by Professor Helen Roy's Native American linguistics class at Michigan State University ... and you'll probably find her drilling a dozen students on difficult-to-pronounce words such as bmijigoe. "I'm teaching a language, but I'm also teaching a way of life," Roy said. "If we lose the [Ojibwe] language, the danger is that we'll also lose the culture to which it belongs. I don't think anyone one wants that to happen, and that's why we work so hard in class every day." As a Native American, she is engaged in a passionate struggle to save her tribal language, a Michigan version of the Algonquin-family language, Ojibwe, from vanishing within the next few decades. But teachers such as Roy face an uphill battle, said Wayne State University linguistics expert Anthony Aristar, who is directing efforts to build a nationwide, $2 million database aimed in part at preserving dying languages. Aristar and other researchers say that at least half of America's 200 remaining native languages will vanish within the next century.


Software

Software refers to anything that instructs the hardware how to operate or perform. There are two very basic types: operating systems, like Windows XP or Windows 2000 and application systems, like Excel or PowerPoint, which have very specific tasks to do. New software comes out periodically and it is sometimes hard to keep up with the latest version. Whether you use a PC or a Macintosh, today most

CD-R: New information can be written or burned, but it is permanent and can’t be changed or erased.

CD-RW: Can be written to many times and can be modified and erased if you choose to do so.

DVD Drive

Newer computers contain DVD (Digital Versatile Disk) Drives. A DVD can hold as much as seven times the information of a CD-ROM. Like CD-ROMs these come with options for read-only (DVD-ROM), DVD-R (Recordable) and DVD-RW (Re-Writable) which you can use if you have a DVD-ROM drive on your computer. DVD-R that can be played on any DVD player will have the logo.
software is compatible with both. The software that we have found to be most helpful for work with languages includes: Microsoft Word, PowerPoint, FrontPage and Adobe Photoshop. For work with sound files, we support the use of Audacity, a free download from the internet. There are many sophisticated software products, which are worth exploring as your skills with computers increase. We will be discussing specific additional software which supports work with language in Part IV. We will also discuss how to save files independent of specific software programs so that you will not lose data when switching computers or when updating your own system.

The Desk Top

The desktop is the window, which appears as you open a Windows program. The desktop screen has the main items that dictate how the computer will operate or perform at the user’s discretion. The icons and text indicate what software is available. The user just needs to learn to ‘point and click’ on whatever is needed to put the computer to work. On very old computers, the information was text only. Today, pictures (images are known as icons or graphical user interfaces) are displayed for users to ‘point and click’ on to open a window or program.
### Programs

If you would like to know what software is installed in your computer, left click on the ‘Start’ menu and then click on ‘Programs’. You can then select the program you want and right click, at this point, choosing ‘Open’ to enter the program.

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**Exercise 2**

1. Explore the desktop – and do the following:

   - **Point and click** on the ‘Start’ button and study what programs are on the computer you are using.
   - **Point to a program and open it**
   - **Close the program by pointing and clicking on the ‘File’ menu** -- scroll down to ‘Exit’ or ‘Close’… and click. Some items do not contain a ‘File’ menu – in this case, close the window by clicking on the ‘X’ in the upper right hand corner of the window.
   - **Try opening and closing** other programs
   - **Optional:** Try moving icons around on the desk top by clicking on and then dragging the icon.
Technology is a tool

The term ‘technology’ can refer to a computer, a video camera, a digital or tape recorder. The goals for using technology will differ with each community’s situation and technology can be used in conjunction with other community language revitalization efforts.

How will you use technology in your community?