With the spread of the microcomputer to schools throughout the world, students in many countries have used the Logo language to learn, explore, and have fun. Logo has a long tradition in Hong Kong where a version developed at Hong Kong University has been in use since the mid-1980's. Logo is now used throughout schools in Hong Kong. Two textbooks approved by the Hong Kong Education Department integrate Logo into the computer literacy and math courses for Form 1 to Form 3 (equivalent to the U.S. 7th to 10th grades). As computers become more available in elementary schools, Logo is being used at younger levels to introduce students to computers and prepare them for future studies.

Andy Lo is president of Autosoft, a computer products distributor that specializes in Logo and music software. His firm represents Terrapin in Hong Kong. “Most schools are familiar with Logo developed at Hong Kong University (HKU Logo) and have been using it for years,” he says. “Now that they have more advanced computer equipment, they are very interested in PC Logo which offers advanced features that take advantage of the new hardware capabilities. This is particularly true of the Windows version of PC Logo which provides a complete Windows interface similar to other programs they are learning.”

The Pui Ching Middle School in Kowloon has installed PC Logo in their lab of 24 computers. Under the direction of Wai Tung Chung, chairman of the Computer Studies Department and Man Kit Leung, computer teacher, students use Logo during three years of computer studies. According to Mr. Chung, Logo is used at Pui Ching to teach programming concepts, beginning with graphics and moving to other areas. “We find Logo to be an excellent preparation for Pascal, which they study for the advanced placement exams.”

Bill Glass, Terrapin president, visited Hong Kong and mainland China to see how Logo is being used and to investigate expanding Logo use in China when Hong Kong and China are integrated later this year. Bill attended a series of extracurricular classes for students 8-10 years old. These classes are designed to help familiarize students with how computers operate and to prepare them for the future Logo curriculum they will encounter in their later studies. He found that most Hong Kong students work in both English and Chinese. When creating Logo procedures, they often use phonetic English to spell out Chinese words. Students learned how to use the mouse to move the screen turtle in PC Logo and quickly took advantage of this feature to draw Chinese characters on the computer screen.

Andy Lo visits mainland China frequently. “Chinese schools do not have as many computers available to students as in Hong Kong, but their numbers are growing quickly. With a population of more than 1 billion people, there are approximately 800,000 schools in China. We have installed Logo in the computer lab in a school in Guangzhou province and I am pleased to say that it is popular with both students and teachers alike. We look forward to the prospect of bringing Logo to Chinese students as the schools open up to technology and new learning approaches in the coming years,” he concluded.

Visit our new website: www.terrapinlogo.com
TIPS & TRICKS

You use dialog boxes all the time at your computer. Little boxes pop up and ask you a question. You respond by clicking a button. You probably use these dialog boxes without thinking much about them.

How would you like to be able to use dialog boxes in Logo? Imagine writing a Logo game that ends with a dialog box asking if you want to play again. Maybe the dialog box gives you a score or gives you a clue. It could explain an error you made. There are many uses for dialog boxes.

This tip shows you some sample dialog boxes using Logo PLUS on the Macintosh or PC Logo for Windows. The procedures are too long to include here, but at the end of this tip are many ways to receive the program listing for free.

Although the Macintosh and PC work with dialog boxes in different ways, we have written procedures that allow you to use the same commands in the same way on both types of computers. The commands are a set of Logo procedures that present different types of dialog boxes, depending on how you want to use them.

On the PC, the procedures use the standard Windows dialog boxes. The boxes you generate in Logo will look exactly like all the other dialog boxes you see. Each type of dialog box has an icon or symbol that appears with your text. You can select a button with the mouse or press <Enter> to accept the highlighted button. You are provided with a set of predefined button names.

On the Macintosh, Logo doesn't deal directly with the system to generate dialog boxes. Instead we use an extra graphics window and handmade buttons. The INRECT? command helps us figure out which button you click with the mouse. The Macintosh version doesn't come with icons. You could create shapes for icons and include them yourself for an extra challenge! You can give a button any name you want.

Here is a list of the dialog box commands that you can use on both machines. (You'll need to send for the Logo procedures to use them! See the end of this article.)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Buttons</th>
<th>Icon (PC only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUERYBOX</td>
<td>Yes or No</td>
<td>?</td>
</tr>
<tr>
<td>INFOBOX</td>
<td>OK</td>
<td>i</td>
</tr>
<tr>
<td>WARNINGBOX</td>
<td>OK</td>
<td>!</td>
</tr>
<tr>
<td>ERRORBOX</td>
<td>OK Cancel</td>
<td>stop sign</td>
</tr>
</tbody>
</table>

Each command takes as input the text you want to appear in the box. It then reports the name of the button you click. You can use this result in an IF statement in your program.

Here is a sample Macintosh dialog box that asks a Yes/No question.

```
QUERYBOX 'Do you want to play again?'
Result: Yes
```

Use the result of the dialog box selection in an instruction such as:

```
IF QUERYBOX 'Do you want to play again?' = 'Yes'
```

The following PC dialog box reports your score in a game. You need to have set up a :SCORE variable and value in your program.

```
PC Logo
You now have 100 points.
```

The instruction to create and use this dialog box would be:

```
IGNORE INFOBOX [(You now have) :SCORE [points.]]
```

The IGNORE command discards the OK result, as it is not useful to you in your programming. You'll have lots of fun exploring dialog boxes with Logo with these powerful tools.

Happy Logo adventures!

To receive the dialog box program, do one of the following:

- Order the new PC Logo for Windows 2—these procedures are included!
- Download the program from our Web site: www.terrapinlogo.com
- Send an e-mail message requesting the version you want to: info@terrapinlogo.com
- Send us a fax and ask for the version you want. We'll fax the listing back to you.
- Write to us and we'll mail you a printout of the version you request.

GET INTO ROBOTICS!

While quantities last, Terrapin is offering its Introduction to Robotics for a reduced price of $199.95 (regularly $269.95). The Introduction to Robotics is an ideal way to expand Logo learning beyond the computer using Logo to control a "turtle" that your students construct. The Introduction to Robotics contains a Lego buggy kit, special Logo files for controlling the buggy's motors, and a parallel interface box to connect the two. It is available for PC Logo for DOS and Windows.

STOCK-UP SALE TEN FOR TEN

Due to a special printing, Terrapin can now offer a quantity discount on two of the most popular Logo curriculum books: Logo Works: Lessons in Logo and The Logo Project Book. Both provide introductory instruction for Logo, with Logo Works concentrating on graphics elements and The Logo Project Book concentrating on data and list processing. The books are appropriate for students in grade 4 and up.

Through September 30, Terrapin will offer Logo Works and The Logo Project Book at $10 each when purchased in quantities of 10 or more. This volume discount is applicable to each book or a combination of the two. The regular price of each book is $24.95. These books are ideal for use as textbooks and the quantity discount makes it economical. Please indicate Apple II, Mac, DOS, or Windows when ordering.
Visit Terrapin at NECC

Terrapin Software will have a booth in the exhibit area of the National Educational Computing Conference at the Washington State Convention Center in Seattle, Washington from June 30 through July 2. Stop by and say hello and take a look at Terrapin's wide variety of Logo products.

Advanced Robot Lab for the Mac

The Advanced Robot Lab is now available for use with Logo PLUS on Macintosh computers as well as with PC Logo for DOS and Windows. The Advanced Robot Lab includes the Fischer-Technik Experimenta construction kit containing the building materials for 15 machine models, including a "turtle," traffic light, washing machine, freight lift, and robot arm. Now use Logo PLUS to control the motors and read the switches and sensors in your robotics constructions.

Daniel Lunt, a teacher at the Booker Middle School in Sarasota, Florida, is one of the first to use the Advanced Robot Lab for the Mac. "Through a Title 6 federal grant we were able to set up eight robotic stations on the Macs in my classes for gifted sixth-grade students," he said. "Robotic control integrates well with our Logo studies and inspires the students to apply the problem-solving techniques they learn with Logo programming to concrete hands-on activities."

Logo Keeps Old Computers Contributing in the Classroom

Logo is a software classic that pioneered the use of computers in the classroom. Though Terrapin's current versions of Logo take advantage of all the capabilities of the latest computer hardware, Terrapin continues to offer Logo for older computers. "Even the earliest versions of Logo teach fundamentals of problem-solving and enable students to interact with the computer," according to Blake Anderberg of Alma Heights Christian Academy in Pacifica, California. "We use Terrapin Logo and LogoWorks with our Apple IIs in our classes, which allows me to teach modern concepts even with older machines." Terrapin offers versions of Logo for the Apple II, and for Macintosh and DOS computers that do not have sufficient memory installed to run the current versions.

Exploring Math with Logo

Terrapin offers a free booklet, Exploring Math with Logo, containing 10 activities to help students investigate mathematical topics using Logo. The activities can be used at many grade levels and show the range of concepts that can be explored with Logo. Copies of the booklet are available from Terrapin on request. The activities are also available at the Terrapin website at www.terrapinlogo.com.

New at the Logo Bookstore!

Terrapin now carries these exciting new additions to the Logo Library:

**Computer Science Logo Style, Second Edition**
by Brian Harvey

**Volume 1: Symbolic Programming**
This is a Logo programming text, featuring natural language processing (words and lists) including three example project chapters. Functional programming style is emphasized, including detailed explanations of recursion and of higher-order procedures.

**Volume 2: Advanced Techniques**
Volume 2 alternates tutorial chapters on advanced features of the Logo language with seven example case studies. The language features include nonlocal exit, program as data, property lists, and macros. The projects include a utility program to find differences between two versions of a file, a general pattern matcher, and a compiler that translates BASIC programs into Logo.

**Volume 3: Beyond Programming**
Undergraduate level computer science topics such as automata theory, discrete mathematics, algorithms, programming language design and compilation and artificial intelligence are the focus of Volume 3. The ideas are illustrated with concrete Logo programs, such as a Pascal compiler, written in Logo, that compiles into a simple assembly language.

**Pricing:** $35.00 per volume; $85.00 complete 3-volume set

**The Connected Family - Bridging the digital generation gap**
by Dr. Seymour Papert

The digital age has come home, and parents everywhere wonder about its revolutionary effects on their children and families. As the personal computer becomes standard homework equipment, the Internet replaces the library and computers offer new forms of play. Seymour Papert, the country's foremost expert on children and computing, speaks out in this groundbreaking new book.

**Price:** $22.95
INTRODUCING
PC LOGO FOR WINDOWS VERSION 2

PC Logo for Windows version 2 has all the features of the original PC Logo for Windows and adds many exciting enhancements. It is easier for beginning users and more powerful for experienced programmers.

New dialogs speed up programming
The new Turtle Center and Multiple Turtle Center allow you to set up one or more turtles with all of the characteristics you want in one easy step. Set the pen color and width, enlarge, rotate, flip, stamp, lock and name an unlimited number of turtles with the click of a mouse. The dialog will even type the equivalent Logo commands for easy copying and pasting into your programs.

Enhanced graphics capabilities
Now you can turn your turtle into virtually any shape and load in any background, including photographs. Try the 124 ready-to-use rotating turtle shapes or create your own using the built-in shape editor. Give your turtles multicolor shells from any BMP source. Experiment with the improved fill command or automatically change individual colors already on the screen.

Improved environment
Choose between Standard and Expert modes to suit your needs. UNDO and REDO your graphics commands up to 10 levels. Create new primitives with AUTOLOAD. Add custom menus to Logo and automatically access your own Help files. Larger buttons provide shortcuts to common commands and improved math provides precision to 15 decimal places along with floating point graphics coordinates.

Multimedia
PC Logo provides access to the Windows multimedia capability allowing you to add your favorite video clips, sound files and CD information to your Logo programs. Built-in robotic control makes interfacing easier.

More materials
Explore more than 100 new primitives, commands and auto-loading tools. Try the many games, demos, and sample programs and use them as a base to create your own. Load in over 100 new shapes, shells, and backgrounds provided with the upgrade package.

System Requirements:
Microsoft Windows 3.1 or Windows 95, 1.5 MB minimum hard disk space

Upgrade Pricing Information
Terrapin offers special upgrade pricing for schools and individuals already licensed for PC Logo for Windows or any other Terrapin version of Logo.

Single User Upgrade
PC Logo 4 or PC Logo for Windows ver. 1 $35.00
LogoPLUS for Apple II or Macintosh $50.00
Multiple Workstation License Upgrade
PC Logo 4 or PC Logo for Windows Version 1 $50.00 for License
For multiple workstations + $5.00 per computer
LogoPLUS for Apple II or Macintosh $50.00 for License
For multiple workstations + $10.00 per computer
New User
PC Logo for Windows 2 with 500 page manual $99.95

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<td>PC Logo Win. 2 new user (includes 500 pg. manual)</td>
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MA RESIDENTS + 5% SALES TAX

SHIPPING 6.00

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HOW TO USE THIS FORM
Please fill out the information on the previous page and fold this sheet along the dotted lines on the reverse side. Tape or staple it at the bottom, making sure to tape both sides if you are enclosing a check. Drop the form in the nearest mailbox—no postage necessary—and Logo will arrive at your house in a few days.
If paying by credit card, you can fax this form to 1-800-776-4610 or 1-617-492-4610.

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E-MAIL: info@terrapinlogo.com
What Language Does Your Turtle Speak?

Your turtle usually speaks Logo, but you can teach it other languages as well. With your help, the turtle can translate words and phrases into other forms of communication.

There are many types of languages you could explore with Logo. Some are written languages, some are visual languages, and some are spoken or aural languages. Can you think of an example of each one? Here are some things to try.

CHINESE

These Chinese characters say “he ping,” which means “peace.” Can you define procedures to make the turtle write “peace” the way the Chinese write it?

MORSE CODE

Morse code is a language for transmitting messages. It consists of dots (short sounds) and dashes (long sounds). Each letter, number, and punctuation mark has its own combination of dots and dashes.

For example, the code for S is three dots and the code for O is three dashes. Can you help the turtle send an SOS (Save Our Ship) message in Morse code?

Here is “SOS” in Morse code:

• • • • • •

SEMAPHORE

Sailors can communicate at sea with semaphore signals. Messages are sent by holding two flags in specific positions for each letter.

Here is the word “Logo” in semaphore signals. Do you see how the two letter O’s look the same?

Can you write procedures to help the turtle signal each letter? Look up the semaphore codes in a dictionary or encyclopedia.

SPANISH

Here is another way to use Logo to communicate in another language. You can actually use Spanish words to give commands to the turtle.

Use a COPYDEF instruction to rename an English command to Spanish. For example ADELANTE means FORWARD in Spanish. The following instruction creates a new command called ADELANTE that works just like FORWARD.

On the Mac, use the command:
COPYDEF "FD" "ADELANTE"

With PC Logo, use:
COPYDEF "ADELANTE" "FD"

Here are some other Spanish commands to “copydef” to create your own Spanish version of Logo.

LEFT = IZQUIERDA (IZ)
RIGHT = DERECHA (DE)
BACK = RETROCEDER (RE)
HOME = CENTRO
REPEAT = REPITE
DRAW = LIMPIA
HT = ESCONDERTORTUGA (ET)
ST = MOSTRAR TORTUGA (MT)
HEADING = VALRUMBO
SETHEADING = RUMBO
PENDUP = SINLAPIZ
PENDOWN = CONLAPIZ

PIG LATIN

Here is a final challenge for you. It involves Logo’s word and list commands. Can you write a procedure that translates any sentence you enter into Pig Latin?

PIGLATIN [LOGO IS FUN]

Result: OGOLAY ISAY UNFAY

There’s not room enough here to tell you exactly how, but this project and other fun word play activities can be found in The Logo Project Book, now available for the Macintosh as well as for PC Logo and Terrapin Logo for the Apple II.