



# THE NATIONAL LOGO EXCHANGE

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FORWARD 100!

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## LOGO and DOS: Classroom Partners

by  
Nancy Parks Sopp

"Mrs. Sopp, can I initialize a new disk without losing my Logo procedure?" Bridgette asked.

"I'd like to use both disk drives with Logo," a colleague said. "Is there a way to do this?"

Andrew wanted to know, "Can I put my Koala Pad picture into a Logo procedure?"

I answered "Yes." to all three questions and taught my co-learners to use MIT Logo's DOS primitive on our Apple II computers.

### DOS REVEALED

The disk operating system (DOS) consists of a group of commands for using the disk drive. LOAD, SAVE, DELETE, CATALOG, and BLOAD are examples. DOS commands are used usually with BASIC, but they are not part of the BASIC language. DOS commands are stored in the HELLO program that is on each initialized files disk.

Many DOS commands have direct Logo equivalents. READ is MIT Logo's equivalent for DOS's LOAD. ERASEFILE and ERASEPICT do the same job as DOS's DELETE.

Some DOS commands have no Logo equivalent. These can be used from within Logo, with the DOS primitive. Terrapin recently released their Version 2.0 of Logo. It does not support all the DOS commands that the older versions do. The remarks which follow are for older MIT Logo versions. Changes for Terrapin's 2.0 are noted at the end of the article.

The MIT Logo technical manual lists these DOS commands for use with the DOS primitive: DELETE, VERIFY, CATALOG, LOCK, UNLOCK, MON, NOMON, RENAME, BLOAD, BRUN, and BSAVE. Not listed, but supported, are INIT and D2 (when used after CATALOG or INIT HELLO).

### HOW TO DOS

To use DOS commands, type DOS and the commands enclosed with square brackets []. For example, I showed Bridgette how to put her new disk in drive 1 and type

```
DOS [INIT HELLO]
```

The drive initialized her disk, with Logo and her workspace remaining intact. If Bridgett's disk were in drive 2, she could have typed

```
DOS [INIT HELLO, D2]
```

My colleague's desire to use drive 2 was satisfied similarly. He typed

```
DOS [CATALOG, D2]
```

Once he accessed drive 2, all further disk operations took place there until he typed

```
DOS [CATALOG, D1]
```

Now let's get to Andrew's question and the most powerful use my students and I have found for using DOS within Logo: BLOADing non-Logo pictures.

My students use the Koala Pad and Power Pad graphics tools to create pleasing, colorful pictures. They use Fontrix software to print words, slogans, and stories in stylized character sets. Images created with these and other graphics programs can be incorporated into Logo procedures with the DOS primitive.

Andrew wanted to use a scene he had created with his Koala Pad as a backdrop for Logo shapes. First, we tried to pull a fast one on Logo by adding .PICT to the end of his Koala picture name. We booted Logo and used READPICT to retrieve it. The screen remained blank and the computer froze up. Later, we found out why our trick didn't work.

There are two high resolution graphics screens in the Apple computer. These correspond to discrete memory locations within the

## DOS continued

computer. Logo uses screen 1; the Koala Pad and Power Pad software use screen 2. The instructions in Andrew's Koala picture file automatically specified screen 2 as the target memory location. Logo was trying to load it into the memory location for screen 1. No wonder the machine was confused! We couldn't even crash Logo with control reset, and had to turn the computer off and reboot. We then learned to use Logo's DOS command, and typed

DOS [BLOAD PICTR.ISLAND, A\$2000]

BLOAD is the DOS equivalent of READPICT. When Andrew saved his Koala picture ISLAND, the Koala Pad software added PICTR. to the front of the filename. Thus, PICTR.ISLAND is the filename we needed to call with the DOS primitive. The A\$2000 specifies the starting memory address for screen 1.

Andrew then used SAVEPICT to resave his picture from Logo. For reasons we do not understand, Andrew could not draw on the BLOADED Koala picture until he had used SAVEPICT, then READPICT.

He followed the same steps later with a picture made with the Power Pad.

### GETTING FANCY

Joe made a poster with Fontrix and Logo. He first used Fontrix to print the name of this favorite rock group on the screen. He saved the image, then booted up Logo and retrieved the image with

DOS [BLOAD MOTLEY]

Since Fontrix uses screen 1, Joe didn't need to use the A\$2000. He made the turtle draw the rock group's insignia beneath the name, saved the completed poster as a Logo picture, and printed many copies for his friends.

Andrew later decided to use Fontrix to put a title on a Koala-and-Logo picture. Since Fontrix readily accepts the Logo picture file format, that was no problem at all.

Students can use the Koala or Power Pad software to fill Logo designs with color. However, they must first decrease the file length and put PICTR. at the front of the filename.

Koala and Power Pad pictures are saved as 33 sector binary files. That is, the picture is stored on 33 small sections of the disk. Logo picture files, on the other hand, need 34 sectors. Thus, students must save their Logo pictures with the following command. (FLOWER is an example of a filename.)

DOS [BSAVE PICTR.FLOWER, A\$2000, L\$1FF8]

Then, the graphics software can be used to call the picture for further work. To load it back into Logo once more, follow Andrew's earlier steps.

The use of the DOS command has enriched the Logo activities of my students and colleagues. Why not give it a try yourself?

Terrapin 2.0 Note: The following DOS commands are not supported by Terrapin's 2.0 Logo version: MON, NOMON, VERIFY, INIT, and D2. I have never used the first 3 commands, but I regret losing the ability to initialize disks. The Logo primitive SETDISK allows you to specify which disk drive you want.

For Koala Pad information, write Koala Technologies, 3100 Patrick Henry Drive, Santa Clara, CA 95050.

For information on the Power Pad, write Chalk Board, Inc., 3772 Pleasantdale Road, Atlanta, GA 30340.

Fontrix information can be requested from Data Transforms, 666 Washington Street, Suite 106, Denver, CO 80203.

Nancy Sopp is a special education teacher at the Fairbanks (AK) North Star Borough School District, and has published articles in national educational computing periodicals.

## From the Editor

### GET SET

There is something special about a beginning, even if it is the beginning of a familiar routine. The competitors at the recent Los Angeles Olympics took their marks and performed magnificent movements which they had practiced for years. They knew the duration of their tasks and the standards for excellence. They knew they must give their best efforts.

At the beginning of the school year, we also take our marks. For the "seasoned veterans" among us, the routine is definitely familiar. We have practiced and trained for this moment. The standards are high - will our best be good enough?

As in past years, the NLX is dedicated to supporting and encouraging your Logo teaching efforts. Our motto, FORWARD 100,

## Editor continued

Helps us to keep our efforts focused in a progressive and productive direction, and to give you our best - 100%.

As we each approach the school year starting line, let us do so with a quiet confidence that this will be our best year yet with Logo.

Take your marks. FD 100!

### Special Note:

Within the last year, I have become affiliated with several business concerns. I have formed a writing group to produce a series of Logo books for Holt, Rinehart, and Winston, and am currently a consulting editor for them. I have joined the advisory boards of Scholastic, Inc., and Chalk Board, Inc.

In the interest of objectivity, I will not write book or product reviews for the NLX, and shall remove myself from the drafting of statements in the NLX about these and their competitor companies and products. In spite of efforts to the contrary, I may have a subconscious bias toward them, however. If this bias becomes evident in the NLX, please forgive me, and please inform me. Thanks.

## Low Logo Prices

Almost Free Software, 78 Main Street, Littleton, NH 03561, sells Commodore Logo for \$46.30. (603) 444-2668.

Richard Sundstrom of Strom Systems Inc. announces Terrapin Logo 2.0 version available for \$69.95 plus \$2.00 shipping. (Michigan residents add 4% tax.) School purchase orders are welcome. Strom Systems Inc., 42303 Ann Arbor Road, Plymouth, MI 48170. (313) 455-8022.

The new Terrapin Logo 2.0 version for the Apple now has a suggested list price of \$99.95, and includes a language disk, a utilities disk, and a 520 page manual. The 2.0 version runs on the recently introduced Apple IIc portable computer. In addition, Terrapin offers savings of 47% to 54% when Terrapin Logo is purchased in lots of 10 or 20 copies. Terrapin's new address is 222 Third Street, Cambridge, MA 02142. (617) 492-8816.

## Tipps for Teachers

by Steve Tipps

### A New Year With Logo

A new year of teaching brings mixed emotions. Will the new group of students be as good (or as unruly) as last year's? Who will ever replace Robert, or Stacy, or Suzanne? And please let me remember how I started last year. Things seemed to start so well! A new year with Logo has a similar mix of anticipation and fear.

\*Will the children like Logo this year? Some of the children seemed to get bored by the end of the year. What can I do to keep up their interest and challenge them? I can't think up new ideas every day.

\*What if somebody asks me again if they should use " or : before SIZE? I never have really understood which is which or why; I can finally get it to work if I play with it.

\*How can I get children more time on the computer? Those that had a computer at home seemed to make more progress.

\*What should I do if a parent says to me, "My child drew circles with Logo last year. I hope you will teach them something useful this year." How can I tell them Logo is not just for drawing circles?

\*What if the other teachers think I should teach BASIC this year as an equal opportunity language? What does make Logo so different, special, and important?

These questions loom as real as the first day of school. I can't answer them for you because you must write your own answer procedures. I'll share some thoughts from a summer full of Logo learning. Glen, Tom, and I shared Logo with teachers and parents from all over the United States this summer. We met new and old friends at Logo 84 and NECC. One message repeated throughout the summer was that Logo is changing.

REPEAT 1000 [PRINT [LOGO IS CHANGING]]

Logo became available commercially only 2 to 3 years ago. Many schools adopted Logo as part of a computer awareness program. Logo seemed like a good "first" language for elementary students. Logo was also fun and helpful in developing computer skills such as saving to disk, loading files, keyboarding and editing. Each new year, new schools are introducing Logo for these reasons.

## Tipps continued

Logo is excellent for this limited purpose, but Logo can do much more and you can do much more with it. Teachers and children with one, two or three years of experience are using Logo as a tool to explore the rules, discover meanings, and express ideas in mathematics, language, social studies, art, music, etc. Individual teachers and groups of teachers are looking into content and finding ways for Logo to be useful. A few of the common ideas are:

1. Plotting tools in algebra
2. Graphing tools for social studies and science
3. Sentence and poetry generators in language
4. Perspective tools in art
5. Transposition of keys in music

The content areas are not new; they are standard fare in every school district. Even the activities are not new; you can find programs in BASIC to do the same things. Giving children a tool which they control is new. The message of Logo is that it gives us power with ideas.

Powerful ideas are not restricted to Logo. We must realize that Papert's powerful ideas are powerful because they have power in the world. Logo is a way of playing with variability, patterns, naming, associations, properties, communication and record keeping. Other ways of investigating ideas exist in the science lab or in writing. We have only begun to use Logo.

### WHY NOT YET?

Good learning is developmental learning; it takes time. You do not learn how to ride the bicycle, or cook well, or solve differential equations, or be considerate in a single day. Only through experience and guidance do these skills and attitudes develop. If they could be eaten like apples or applied like a poultice, more people would be considerate, gourmet, bicycling mathematicians. Only through many mistakes and gradual improvement, are we able to ride, cook, solve, and be considerate.

One reason Logo is not yet being used completely is that we are still developing skills and attitudes with it. Almost everyone reports that they started with Logo before knowing very much. Any first year with Logo means barely keeping even with the students. It is an exhilarating and frustrating time. To those of you who are beginning,

take heart. Keep working and learning, but do not expect to master it in a three hour workshop, or even a three credit course. Logo is developmental and demands time.

Another reason Logo has been limited is that a Logo culture or environment must develop. Dan Watt referred to the "boomtown" era which Logo is in now. The pioneers are there, but Logo needs many settlers to nurture it. Settlers plant Logo in many different places to see where it grows and under what conditions.

What makes Logo thrive in classrooms? Individual teachers working and playing with children find out how it works. What makes Logo work throughout a school? We don't know exactly, but fifteen years of research on innovative programs in math and science indicate at least two things. Constant administrative support of teachers and continual inservice are essential.

Too many schools take the adopt-and-drop approach. School divisions which adopt Logo and drop it on teachers ensure failure. A better plan is to plant Logo with teachers who are willing to spend time to work out the bugs. Logo takes time to grow. Flowering in one classroom will be more effective at creating a culture than dropping Logo like a bomb into three hundred.

### QUESTION AND ANSWER

Creating a culture is the present goal of people involved with Logo. The new year's questions deal indirectly with the responses you need to make for yourself in that Logo culture. These questions are asked of me so often that I will try answers for myself. Modify them for yourself.

**\*\*Will the children like it this year?**  
What can I do to keep up their interest and challenge them?

If children are still turtling (drawing squares, circles, and doing screen wrap) after a year, they will be bored. Children need to see new things to do with Logo. They also need to think about what they are doing with Logo when they draw polygons.

Here's a challenge for fourth and fifth grade students. Compare the sum of the angles made by the turtle and the sum of the angles inside the figure.

	TOTAL TURTLE TURNS	TOTAL INSIDE ANGLES
square	_____	_____
pentagon	_____	_____
hexagon	_____	_____
circle	_____	_____

## Tips continued

After working with the turtle, the difference between inside and outside angles seems to blur. There is something to be learned from a well placed question.

You do not have to think up all new ideas. Ideas for Logo are becoming more widely available in magazines and books. The materials at Logo 84 were certainly indicative of an explosion of activity materials. Some are excellent; some reduce Logo to a recipe. But good teachers can take dreadful reading and math materials and lead children into the revels of reading and the magic of mathematical thought.

The teacher who structures the class for discovery has an important ingredient. Look for ideas everywhere. Have an open bookshelf of magazines and books. Put the NLX out for students, as well as Abelson's excellent language manuals. Encourage children to create their own uses. Let children decide what they want to do with Logo next. And let children post challenges for each other. Your task is to set up the environment as a place which invites new ideas.

**\*\*What if somebody asks me again if they should use " or : before SIZE ? I never have really understood which is which or why; I can finally get it to work after awhile.**

The simple answer deals with the language question. Look at these two examples. "JERRY" is a label for a variable. The list in brackets is the value of the variable.

```
MAKE "JERRY [A VERY GOOD SKATER]
MAKE "NANCY [A CHAMPION SWIMMER]
```

You can print "JERRY or the THING about "JERRY.

```
PRINT "JERRY
JERRY
PRINT THING "JERRY
A VERY GOOD SKATER
```

Compare the results to using PRINT with :JERRY.

```
PRINT :JERRY
A VERY GOOD SKATER
```

They are the same. Try it again by PRINTING the THING about "NANCY. Then PRINT :NANCY.

```
PRINT "NANCY
NANCY
PRINT THING "NANCY
A CHAMPION SWIMMER
PRINT :NANCY
A CHAMPION SWIMMER
```

The dots (:) are only a shortened form of THING. Early in Logo, the colon is used for input variables; usually, no explanation is given for why the marks are used. Understanding about THING is the key to understanding which is which and why. That's the easy part.

The harder part of the question is your feeling of confidence. Adults always want to know how to do it and do it right. You shouldn't expect to remember why and how things work in Logo any more than you cook without references. Use resources to supplement your understanding and ask questions. Don't be afraid of making mistakes in front of the students. You can have a bug and say you don't know. You can also demonstrate three or four tries before you get it right.

**\*\*How can I get children more time on the computer? Those that had a computer at home seemed to know so much more and make more progress.**

Equity in computing is a big issue and likely to get bigger. Many more schools have computers than three years ago, but computing resources certainly do not match Papert's goal for "a computer for every child." This challenge was one of the most controversial ones from Logo 84.

(Ed. Note: The International Council for Computers in Education (ICCE) is becoming actively involved in the equity issue. For more information, write Sharon Franklin, ICCE, University of Oregon, 1787 Agate Street, Eugene, OR 97403.)

Glen Bull suggests that, given a choice of learning with or without paper, he would definitely take paper. But if you only had 2 sheets of paper for thirty students over a full year, you might not be much better off than with none. Thirty minutes once or twice a week is not enough to really dig around with Logo.

Logo is not a recipe for solving all the educational ills of the world. The research results on Logo are inconclusive at this point. Implementation of Logo is extremely varied and likely to stay that way. It is difficult to measure many of the outcomes which Papert hopes to see from Logo use. For methodological as well as philosophical reasons, outcomes for Logo are unlikely in the short run of two years.

Real results are more likely with sustained time on the computer working on content intensive projects. The economics of computing point toward children having a \$300 computer system in their lunch pail to take home. My fear is that it will have programmed instruction rather than exploratory

## Tipps continued

environments. We are in a transition time when computing is still a precious resource. We should work within our school and communities to make computing more accessible to all students.

**\*\*** What should I do if a parent says to me, "My child drew circles with Logo last year. I hope you will teach them something useful this year." Can I tell them why Logo is not just for drawing circles?

The parent is justified in asking the question. If students are doing the same projects at fifth grade as at first, Logo is being wasted. The new class may already know as much Logo as you covered last year. But they may not know what they can learn with Logo yet.

Logo does not fit neatly into scope and sequence charts. It operates on the need-to-know principle. Need comes from engagement in meaningful problems. The most personal learning happens when information lets me do something I want to do. Challenge students to write programs which show native American designs, which perform several operations on a mystery number, which graph the results of the presidential election. You will need to find new places to dig with Logo. Look into your curriculum and find projects to do with Logo.

**\*\***What if the other teachers think I should teach BASIC this year as an equal opportunity language? What does make Logo so different, special, and important?

Logo is different because it is a language designed for the expression of ideas. Hal Abelson's excellent presentation at Logo 84 on advanced programming pointed out that the most important thing which distinguishes Logo from BASIC and Pascal is not structure or capabilities. The crucial difference is that Logo is an expressive medium, a language to express our ideas.

We make the computer do what we want. Logo is not limited by someone else's restrictions on our thoughts. I have had to learn this lesson many times. If there isn't a certain command which I want to use, I can make it. If a certain procedure doesn't work the way I want, I can fix it. If an idea in social studies isn't clear, I can explore it with Logo.

Logo puts the power of invention in our hands. That's what makes Logo different, special, and important. That's why Logo is a good place to start the new year.

(Ed. Note: Although Steve Tipps has moved to Texas, his column will continue to appear regularly in the NLX. We wish him the best in his new position! Write to him in care of the Education Department, Midwestern State University, Wichita Falls, TX 76308.)

Steve Tipps is the West Professor of Education at Midwestern State University in Wichita Falls, TX. He presents Logo workshops for school systems throughout the United States.

前 100

by  
Hillel  
Weintraub

Greetings from Nippon, the land of sushi, Koji Gushiken, and a growing Logo community. Each month, I'll share some aspects of that community in this column: the hardware, the software, the people, and the ideas.

By the way, the Japanese character above is pronounced something like "Mah-eh." I'm sure you can figure out what it means. You have just learned to read your first Japanese kanji without anyone "teaching" you!

### A LITTLE BIT OF NEWS

This month, I want to tell you about a new notebook sized computer from Japan, the Epson HC-80. It has a Z-80 microprocessor, 80 column by 8 line liquid crystal display (LCD), a microcassette storage device, and a price tag of around \$1000. A Wordstar cartridge is available to make it into a rather nice little system.

But here's the exciting news. Epson is working on a Logo version for the HC-80! It "should" be available before the end of 1984. This would make it one of the most portable Logo versions ever. Think of the application possibilities!

With computers becoming smaller and more powerful, the HC-80 certainly has the shape of the computer of the future. Although not yet available in the US as of this writing, the HC-80 and its Logo could become the "take home" notebook of tomorrow's students.

If you have questions about Logo in Japan, please write to me at Doshisha International High School, Tatara, Tanabe-cho, Tsuzuki-gun, Kyoto-fu 610-03 Japan.

Hillel Weintraub is a teacher at Doshisha International High School in Kyoto-fu, Japan, and is the president of the Society for Microcomputing in Life and Education (SMILE).

# Listful Thinking

by  
Glen Bull and Paula Cochran

## Poetry Sparks

Procedures which operate on lists are pieces of Logo machinery, just as spark plugs and carburetors are pieces of automotive machinery. In programming class, it is important to learn how to build these procedures. In English class, it is more important to use them, for example, to create poetry.

### THE IDEA OF EXTENSIBILITY

An English teacher cannot spend great amounts of time teaching programming skills before using the computer to create poetry. In Logo, it isn't necessary.

Logo allows a teacher to add new commands to the language. This quality is called extensibility. Extensibility opens the door for creation of a Logo environment in English, math, and other content areas. An English teacher using Logo can supply list procedures which students use as if they were built-in commands. The procedure PICK can be used this way.

### PICKING THE RIGHT WORD

PICK randomly selects a word from a list. Type this procedure:

```
TO PICK :LIST
  OUTPUT ITEM 1 + (RANDOM COUNT :LIST) :LIST
END
```

(\*\*Note: ITEM and COUNT are not built-in commands in Version 1 of Terrapin and Krell Logo for the Apple. If necessary, see the end of the column for these procedures.)

Now try PICK with this list of words:

```
PRINT PICK [MILK EGGS APPLES BREAD BUTTER]
BREAD
```

What did PICK choose when you tried it?  
Use PICK with your own list of words:

```
PRINT PICK [ _____ ]
```

Here is how to use PICK inside another procedure. This procedure picks a poet.

```
TO CHOOSE.POET
  OUTPUT PICK [POE LONGFELLOW SHELLEY FROST]
END
```

Now use the CHOOSE.POET program by typing:

```
PRINT CHOOSE.POET
FROST
```

Two guidelines will help you use PICK inside another procedure:

(1) When PICK is used inside a procedure, place the command OUTPUT in front of PICK.

(2) When PICK chooses a word, you must tell Logo what to do with the word. In the example with CHOOSE.POET, Logo is told to PRINT the word chosen (FROST).

### CREATING A SENTENCE

Use CHOOSE.POET to make a sentence.

```
PRINT SENTENCE [I LIKE TO READ] CHOOSE.POET
I LIKE TO READ SHELLEY
```

What did you get when you tried it?

```
I LIKE TO READ _____
```

The command SENTENCE is built into Logo. It puts two lists of words together into a sentence. The Logo abbreviation for SENTENCE is SE.

```
PRINT SE [HAIL TO THEE,] [BLYTHE SPIRIT!]
HAIL TO THEE, BLYTHE SPIRIT!
```

### BUILDING A POEM

Use PICK to choose rhyming words in a poem:

```
TO POEM
  PRINT SE [THE FASTEST FUNNIEST] RHYME.A
  PRINT SE [WAS ALMOST NEVER] RHYME.B
  PRINT SE [HIS FRIEND THE BIG BAD] RHYME.A
  PRINT SE [WAS ALMOST ALWAYS] RHYME.B
END
```

RHYME.A and RHYME.B are Logo procedures which pick rhyming words for the end of each line.

```
TO RHYME.A
  OUTPUT PICK [CAT GNAT BAT RAT BRAT]
END
```



## Listful Thinking continued

TO RHYME.B  
OUTPUT PICK [GREEN MEAN KEEN CLEAN LEAN]  
END

Here is an example:

POEM  
THE FASTEST FUNNIEST RAT  
WAS ALMOST NEVER LEAN  
HIS FRIEND THE BIG BAD CAT  
WAS ALMOST ALWAYS MEAN

### WHAT IS LEARNED?

Use Logo poetry to explore literature, grammar, and vocabulary. A literature class, for example, might want to explore rhyme schemes. Our sample poem has a rhyme scheme of A B A B. Students could use PICK and SE to create a limerick, for example, a rhyme scheme of A A B B A. Other poetry forms, such as sonnets, have even more complex patterns which can be explored with Logo.

Our poem also has a grammatical pattern. The pattern of word categories is:

The fastest funniest NOUN  
Was almost never ... ADJECTIVE  
His friend the big bad NOUN  
Was almost always ... ADJECTIVE

When nouns and adjectives are mixed in a rhyme list, the presence of word categories is discovered:

THE FASTEST FUNNIEST GREEN  
WAS ALMOST NEVER CAT

Instead of memorizing the properties of nouns and adjectives, students can discover these properties by using them in a playful way.

### HOW MUCH PROGRAMMING?

The point is, you don't have to teach Logo to use Logo — in English class, or any other class. It isn't necessary for each student to develop their own PICK procedure, because the teacher can provide it. This allows the class to focus on poetry instead programming. Here are some of the things a teacher might supply to create a Logo environment for poetry:

- (1) Logo tools such as PICK
- (2) Some examples or models of how PICK can be used
- (3) A content-related project, such as writing a limerick, sonnet, or ballad.

Hal Abelson suggests that a good Logo environment provides a way to express ideas in the same way that paper provides a way to express ideas. What must an English teacher give up when her students use Logo? Nothing more than she gives up when her students use paper and pencil.

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Here are the procedures required to use PICK with Version 1 of Terrapin and Krell Logo.

```
TO ITEM :NUMBER :LIST
  OUTPUT ITEM.LOOP :NUMBER :LIST 1
END
```

```
TO ITEM.LOOP :NUMBER :LIST :COUNT
  IF :LIST = [] OP (SE [THERE ARE ONLY]
    :COUNT [ITEMS IN THIS LIST.])
  IF :NUMBER = :COUNT OP FIRST :LIST
  OP ITEM.LOOP :NUMBER BF :LIST :COUNT + 1
END
```

```
TO COUNT :LIST
  OP COUNT.LOOP :LIST 0
END
```

```
TO COUNT.LOOP :LIST :NUMBER
  IF :LIST = [] OP :NUMBER
  OP COUNT.LOOP BF :LIST :NUMBER + 1
END
```

Glen Bull is a professor in University of Virginia's School of Education, and teaches Logo courses at both the graduate and undergraduate level. Paula Cochran is a reformed English major who studied linguistics at the University of Cambridge. She is now a speech-language pathologist working with language-disabled children.

## TV Turtle

Logo is on television! The NABU Network Corporation of Ottawa, Ontario, has been broadcasting a weekly show called "The Turtle Club" to its cable subscribers. The program features instruction, lively discussions, and demonstrations of Logo procedures. The network also provides its own Logo version (similar to Sprite Logo for the Apple) which is downloaded into NABU computers via cable. NABU now broadcasts into Alexandria, VA, and is scheduled for 20 additional US cities soon. For more information, write Ian Rae, NABU Logo, 1051 Baxter Road, Ottawa, Ontario, K2C 3P2, Canada. (613) 596-6700.



# Apple Logo II:

## It's Bigger, Better

by  
Jason Gervich

Logo lovers, rejoice! The Logo you've been waiting for has finally arrived. At the Apple II Forever show this past April, Apple announced its new Apple Logo II.

Logo II is a powerful and complete programming language designed by Apple and LCSI. It runs on the 128K configuration of the Apple IIe and the Apple IIc computers. When booted, Logo II boasts a whopping 7186 nodes of workspace. No more OUT OF SPACE messages (at least for a while)! The version also features upper and lower case letters, 40 or 80 column text mode, and an enhanced editor.

In addition, Logo II contains 30 file handling commands. These turn Logo II into an all purpose computer language. It is easy to create dribble files, data files, picture files, and random access files. Included also is a "print using" primitive called FORM which takes three inputs (number, field, and precision) and allows professional displays of financial calculations.

Other enhancements include:

- \*Debugging: TRACE and STEP
- \*Music: TOOT
- \*Graphics: SAVEPIC, PRINTPIC, and FILL
- \*Machine Language: .CALL
- \*Line Detection: DOTP

Practically everything in the earlier Apple Logo version is kept or enhanced in Logo II. One exception is the PACKAGE command. It has been replaced with more flexible BURY commands. You can now bury and unbury procedures, names, or the entire workspace, and save selected groups of procedures to a disk file.

### WHAT YOU GET

Logo II comes in an attractive bookcase styled box, with a double sided training disk, the Logo II language disk, and an introductory tutorial and reference manual.

The training disk is interactive, and seems to be an excellent tool for introducing Logo to beginners. It contains lessons on saving and loading procedures, using the editor, and working with variables and lists, as well as turtle graphics.

The improved reference manual contains 325 pages, including sections on file handling and the new Apple disk operating system, ProDOS. The use of ProDOS allows Logo II to be used on a hard disk in a network.

ProDOS does not recognize disk files from the earlier Apple Logo version until converted with the ProDOS conversion utility, a straightforward task.

The language disk contains a plethora of tool kit procedures, including graphics, arithmetic, debugging, and list processing tools. In addition, a set of procedures and documentation is provided for support of the Apple Mouse. With a little work, the mouse can be configured for use as a pointing device for text or menu selection, or as a graphics device for manipulating the turtle.

A HELP primitive displays the inputs to any procedure, and provides several HELP screens for on line guidance. Customized HELP screens can be added for specific teaching situations.

Logo II loads picture files quickly (about 3 seconds), thanks to ProDOS. Further, pictures created with the Mouse Paint program can be brought into the Logo II environment for further work or use. (Logo II picture files are also recognized by Mouse Paint, by the way.) Just think of the possibilities for title screens, drawings for adventure games, and the like!

(Ed. Note: See Nancy Parks Sopp's DOS article in this issue for more ideas on bringing pictures drawn with other programs into a Logo environment.)

Logo II does not facilitate operations with parallel devices, such as printing with a parallel printer, because it does not recognize the Apple Parallel Card in the Apple IIe. It may work with other models, however. Test before you buy. Operations with the Apple Super Serial Card are supported.

### IN CONCLUSION

Apple Logo II is a powerhouse of a language which may redefine the Logo experience. Its implementation on a 128K machine releases much of the power that Logo lovers have been waiting for, and helps bring the nongraphics side of Logo closer to the light.

Jason Gervich is a Logo enthusiast from Palo Alto, CA, and has written computer articles for several national publications.

Micro City, PO Box 571, Downers Grove, IL 60515, offers the Sweet P plotter for \$479. Call (312) 355-9726.

## Results of NLX Logo Survey Announced

Here are the results of the NLX Logo Survey conducted in April and May.

++Logo use by grades. 1677 grade responses.

<u>Grade</u>	<u>Percent</u>
Kindergarten	8.17
First	9.12
Second	10.97
Third	13.18
Fourth	13.95
Fifth	13.89
Sixth	11.63
Seventh	5.78
Eighth	5.49
Ninth	2.74
Tenth through Twelfth	2.21
Post-secondary	2.87

Here is another grouping.

<u>Range</u>	<u>Percent</u>
K-2	28.26
3-6	52.65
7-9	14.01
10-12	2.21
Post-secondary	2.87

++Logo version use. 580 version responses.

<u>Version</u>	<u>Percent</u>
Apple Logo	40.00
Terrapin Logo	31.72
Krell Logo	8.97
Texas Instruments Logo	4.48
Commodore Logo	4.48
Atari Logo	4.14
Dr. Logo	2.24
TRS-80 Color Logo	2.07
IBM Logo	1.38
Other	0.52

++Logo book use.

Dan Watt's Learning with Logo completely dominated the survey. Others mentioned included Harold Abelson's Apple Logo and Logo for the Apple II, Gary Bitter and Nancy Watson's Apple Logo Primer, and MECC's Introduction to Logo for Teachers.

Special thanks to all who sent in the blue cards so promptly. Thanks also to Kevin McCurdy for tabulating the responses.

## Logo Disserts:

### Dissertations Dealing with Logo

by Barbara Elias

Can the Logo environment influence young children's cognitive style? This question was examined in L. M. Young's 1983 study which investigated the effects of the Logo learning environment on the Reflexive / Impulsive cognitive styles of second grade children.

Current research supports the notion that certain cognitive processes appear to support or hinder good problem solving. The Reflexive / Impulsive dimension of cognitive style concerns behaviors in children related to the amount of time a child spends deliberating on solutions in problem solving tasks. Generally, children who are reflexive perform better on visual discrimination tasks, serial recall, inductive reasoning, and reading.

After being classified based on Matching Familiar Figures Test: Child scores, 12 impulsive students were placed in a Logo learning environment for 15 one hour sessions during a 3 week period. Posttest results with the same instrument showed no significant differences in the experimental group. However, more of the experimental group than the control group shifted toward reflexive behavior.

From a practical standpoint, Young noted that all of the children experienced success in programming the computer and in designing programs. Given more time, the type of learning environment provided by Logo may aid children in becoming more self-conscious reflexive thinkers.

>>>Young, L. M. (1983). An Analysis of the Logo Computer Programming Environment upon the Reflexive and Impulsive Cognitive Styles of Second Grade Students (Doctoral dissertation, University of Pittsburgh, 1982). Dissertation Abstracts International, 44, 64-A. University Microfilm No. 83-12545.

(Ed. note: Each month, Barbara Elias highlights a dissertation or thesis dealing with Logo. She is accepting copies of recent research results for the NLX Dissertation and Thesis Repository. Reports may be mailed to her in care of NLX, PO Box 5341, Charlottesville, VA 22905.)

Barbara Elias is an assistant professor in the Education Department of Virginia State University in Petersburg, VA, and a doctoral candidate at the University of Virginia.

## Q and A

by  
Jim McCauley

Q. I am organizing a Logo course for teachers who already have had some Logo experience. Could you suggest an activity for the first class meeting to get us off to a good start?

Q. Until recently, I thought that the Logo primitives were commands. A friend told me that some of them are called operations. Can you help me to understand the difference?

<[-?->

A. My comments this month combine the responses to both of the above questions. I'll tell you about an exercise I have found useful as a kickoff for a course for experienced Logo teachers. Not everyone likes it, but it succeeds in doing two things: insuring that those taking the course become familiar with the range of primitives in Logo, and convincing everyone that I am serious.

### DOERS AND PROVIDERS

Before I assign the exercise, I familiarize the class with the difference between commands and operations. (Both commands and operations are primitives, by the way.) Commands always cause something to happen. For example, if I type FORWARD 100, the turtle moves forward. If I type CLEARTEXT, all text on the screen disappears. You can think of commands as "doers".

Operations are different. An operation is a "provider of information". For example, XCOR provides a number that represents the left-to-right position of the turtle on the screen. FIRST provides the first item in a list, the first letter in a word, or the first digit in a number. The most important difference between an operation and a command is that an operation outputs information to a command or some other operation.

### HOW TO TELL THE DIFFERENCE?

There are several ways to tell whether a primitive is a command or an operation. The easiest way is to look it up in the reference manual. If the description mentions that the primitive in question outputs something, then it is an operation. If output is not mentioned, chances are that it is a command.

Another way to find out is to sit down at the computer and see what happens when you type in the name of the primitive. If you get a response such as NOT ENOUGH INPUTS TO (something), in LCSi Logo, or (something) NEEDS MORE INPUTS, in MIT Logo, it means that the primitive cannot act until the primitive name is typed in followed immediately by the right sort of information. This response is typical for a Logo command which needs input. For example, have you ever typed FORWARD without a number?

Operations, on the other hand, give a response such as I DON'T KNOW WHAT TO DO WITH (something), in LCSi Logo. In MIT Logo, the response is RESULT: (something).

### WHY BOTHER?

It is important to understand the difference between commands and operations for at least two reasons. One is simple: Every line in a Logo procedure must begin with a command. If the line begins with an operation, the procedure does not function, because there is no command to accept the operation's output or to do something with it.

The other reason is not so simple. Most people are introduced to Logo through turtle graphics, a wonderful way to begin programming computers. However, most of the Logo procedures written by beginners contain only commands. Logo operations are rarely introduced in a first course. This is unfortunate, because many of the most powerful features of list processing depend on a good understanding of operations and how they output information.

### HOMEWORK ASSIGNMENT

When I assign the exercise, I divide the class into groups of four. Each group member is assigned the task of compiling a list which contains one of the following. No two group members compile the same list, of course.

1. All the Logo commands that require information. Examples include FORWARD SAVE OUTPUT
2. All the Logo commands that do not require information. Examples include CLEARTEXT PENDOWN STOP
3. All the Logo operations that require information. Examples include FIRST SENTENCE TEXT
4. All the Logo operations that do not require information. Examples include XCOR HEADING READLIST (or REQUEST)

## Q and A continued

Once the effort is over (and it is a major effort), the group members share their findings. They discover that they have acquired a good understanding of the difference between commands and operations, as well as an appreciation of the range of things that can be done in Logo.

Let me close with this question for thought. Is the primitive IF a command? An operation? Both??

(Ed. note: If you have questions about Logo programming techniques or the thinking which leads to Logo programming, send them to NLX Q & A, Post Office Box 5341, Charlottesville, VA 22905. Each month, Jim McCauley answers selected questions in this column.)

Jim McCauley is a Coordinator of Computer Education for the Santa Clara (CA) County Office of Education, and has written Logo articles for several national publications.

## Teacher to Teacher Logo Guided Discovery Kits

reviewed by

Ann Cairns Federlein and Jim Fry

Teachers are always looking for good materials to expand the learning activities in their classrooms. The "Logo Guided Discovery Kits," Apple Logo version, recently published by Microcomputer Resources, is a find for the teacher who is new to teaching Logo in the early elementary grades.

### WHAT IS IN IT?

The kit comes in two versions. Kit 1+ is for use in lower grades. Kit 3+ is designed for upper elementary grades. Both kits contain discovery cards, reference cards, duplicating masters, turtle trainer buttons, a facilitator manual, and keyboard and command posters. Kit 1+ also contains a well constructed turtle hand puppet. Both kits include ideas for use with elementary aged children to stimulate creative thinking.

The facilitator's manuals are well organized and contain an introductory section, a scope and sequence, discovery card support materials, and a bibliography. The introduction gives a great deal of valuable information on the content and structure of the kit, the role of the facilitator, and the effective use of questions. Ideas on guided discovery and learning modalities are included, as well as tips for setting up and managing a Logo environment.

The scope and sequence includes areas such as problem solving, mathematics and geometry, Logo programming, and computer literacy. Kit 1+ also concentrates on early childhood development and concept development.

The discovery card support materials section contains a picture of each student card, along with student objectives, helpful hints, materials required, pre and post activities and questions, and enrichment activities for students and facilitators who want to go further. All information for each card can be seen without having to turn a page.

### HOW TO USE IT?

Given the pressures in today's classrooms, teachers might be tempted to purchase a kit which has all the lessons in sequence and just follow the suggested guide. The kits were designed to be aids for teaching Logo. They are not the only way. They give teachers a starting point to develop their own lessons based on the needs of their students.

How Logo teachers use the kit activities makes the difference between children just memorizing commands and learning them. The abundant number of duplication masters in the kit is a concern; pencil and paper tasks foster drill and practice exercises rather than emphasizing the understanding of Logo principles.

To take advantage of Logo's potential, kit activities should be presented so that children are "guided" to discoveries in Logo, not just "directed" to accomplish the assignments. Many activities encourage peer teaching. It is the teacher who determines whether students understand the process of Logo, or simply follow directions.

The Logo Guided Discovery Kits appeal to young children. The colorful aids and large, easy to follow charts are durably constructed, allowing for many hours of classroom use.

The list price of Kit 1+ is \$159.95, and Kit 3+ is \$139.50. Microcomputer Resources, 2845 Temple Avenue, Long Beach, CA 90806. (213) 424-0763.

Questions and comments on this review should be sent to Logo Information For Teachers (LIFT), 37279 Six Mile Road, Livonia, MI 48152.

Anne Cairns Federlein is a professor in the Early Childhood Area, School of Human and Educational Services, Oakland University, Rochester, MI. Jim Fry is an elementary teacher working with first through fourth grades in the Novi Community School District, Novi, MI.

# TurtleTips

by  
Donna Lanyi  
and Jane Toth

When we first started using Logo in the classroom, we needed and searched for beginner teacher and student activities. Many of the articles and activities we found were geared to more advanced Logo users. This column is dedicated to monthly procedures, teacher hints, and ideas for the novice. Our ideas will follow a theme centered around holidays, seasons, and specific events.

## TEACHER HINTS

In getting our students ready for Logo activities, we've discovered some useful tactile / kinesthetic activities to practice beforehand. The most popular game has been "Playing Turtle." One student plays the Logo turtle following exactly the directions given by another student, the programmer. The programmer tries to get the turtle to a designated spot.

Other options for "Playing Turtle" are the teacher playing turtle with students giving directions, a student or students playing turtle with the teacher as programmer, or giving the turtle a tail made from a yardstick with a marker or chalk attached so a visible path can be left on the sidewalk or paper.

Another pre-computer activity is to have students draw on a sheet of grid paper following directions given by the teacher. Primary teachers could have students place a paper turtle over their pencils before beginning the activity. A HOME position and the size of the grid need to be predetermined. An easy checking method is created because a quick glance among the group allows the teacher to see whose pattern is not the same. Later, children can practice and explore with designs of their own.

"Turtle Says," a version of "Simon Says," can also be played. Students follow turtle commands in the same manner as "Simon Says."

## PROCEDURES OF THE MONTH

"Lost Turtle" and "Turtle Target Practice" are two procedures that allow students to gain experience in moving the turtle on the screen. Both games randomly place targets on the screen. Students need to move the

turtle in the least number of steps to "win". If you are interested in a listing of these procedures, please send a stamped self addressed envelope to the address listed below.

We invite teachers and elementary students to send their procedures or ideas to be shared. Send to Donna Lanyi & Jane Toth, Beall Avenue School, 716 Beall Avenue, Wooster, OH 44691.

Donna Lanyi and Jane Toth use Logo in their elementary classrooms in the Wooster (OH) City Schools.

# NLXionary

## A Lectionary of Selected Logo Readings

by Griff Wigley

This month, six of the seven selections are from publications devoted to IBM computers. Most of the articles have relevance for any Logo user, however.

PCjr Magazine, June 1984, "Looking at Logo," column by Winn L. Rosch

>The second of a two part interview with Seymour Papert. The May column concentrated on Logo's implementation on the IBM PCjr. This part focuses on Logo's role in elementary education. Papert talks empathetically about teachers, explains his personality trait theory on children attracted to turtles vs. sprites, and takes his customary pokes at the structure of public education.

PCjr Magazine, August 1984, "Looking at Logo," column by Winn L. Rosch

>A nifty mortgage amortization program in Logo is explained, demonstrating Logo's serious nature. This would be a perfect Jim McCauley type project, if presented in a way to encourage the reader to tackle the solution to the problem, instead of the "let me explain my solution" approach.

PCjr Magazine, September 1984, "Looking at Logo," column by Winn L. Rosch

>A brief explanation of six publications devoted to Logo and the people behind them: Dr. Logo Newsletter, Logo and Educational Computing Journal, Polyspiral, Turtle News, TurtleTalk, and the NLX. No mention of Logo-ophile or FOLKlore.

## NLXionary continued

jr Magazine, July 1984, "Learning Logo," column by James D. Milojkovic

>A very concise, friendly, and innovative introduction to the programming, learning, and philosophical perspectives of Logo. This article is a standout, not only for newcomers, but for all who have been involved with Logo for a while and need a refresher on what we're really supposed to be up to. The author is billed as a "cognitive psychologist engaged in research on the effect of micro-computers on learning and motivation."

jr Magazine, August 1984, "Learning Logo," column by James D. Milojkovic

>A full explanation of the random "Mondrian" program originally put in the public domain by LCSi. Also included is a diagram of the "procedure calling trees," a feature rarely demonstrated in Logo articles. Many advanced Logo features are explained, appropriate for those in the medium ability range who want to raise their level of sophistication with the language.

Byte Magazine, August 1984, "Four Logos for the IBM PC," by Mark Bridger

>Byte's annual language issue is focused on Modula-2, but contains this technically oriented comparison review of Dr. Logo (Digital Research), IBM Logo (LCSi), PC Logo (Harvard Associates), and Waterloo Logo (Waterloo Microsystems). The author gives a slight edge to IBM Logo over PC Logo for first place, with Dr. Logo a close third, and Waterloo Logo fourth. However, the explanations for his ranking led me to a somewhat different conclusion.

PC World, July 1984, "IBM Rides the Turtle," by Greg Stone

>A straightforward review of the features and shortcomings of LCSi's IBM Logo. Stone's conclusion: "IBM Logo is clearly better than Waterloo Logo, but when you start comparing it with PC Logo and Dr. Logo, you have to decide what features are most important to you." Before you buy Logo for your IBM PC or PCjr, read this article, the Byte article, and Reinhold Wappler's "Logo for the IBM Report."

(Ed. Note: For a free copy of the Wappler Report, send a long, self addressed envelope with 54c in US postage or postal coupons to IBM Report, c/o NLX, PO Box 5341, Charlottesville, VA 22905.)

Griff Wigley is a co-owner of Family Computing, Inc., a facilitator in the Faribault (MN) Public Schools, and a school board member of Prairie Creek Community School.

## Logo 84

### Held at MIT

Here are some personal comments and reactions to the Logo 84 conference.

Andrew David:

What happens when an artifact hatched in a laboratory environment leaves home in a world of many philosophies, objectives, and imperfect scenarios? With so many voices beginning to be heard in an ever widening range of experience, the first national Logo conference at MIT this past June was timely.

Who was there? Teachers, curriculum designers, computer scientists, network organizers, researchers, developers, administrators, and video producers. 16 countries and 6 continents were represented. More than half of the participants were women, something that would have been unheard of in a computer conference 10 years ago.

What were they talking about? Everything. Open classrooms in the 60's, kinesthetic game rooms in the 90's; what is possible versus what is important; proper methods for evaluating Logo learning; supporting Logo in a classroom with a computer shortage; Logo and the hearing impaired; Logo in business; even Logo in religion.

One of Papert's main points was that we must search for ways to present knowledge in reconstructible fragments, an embellishment of his "mind sized bites" idea. Like the children he would have us reach, we at the conference played with fragments and reconstructed them through dialog.

Where do we go from here? Logo is still going strong. Newer more powerful versions will come, but we don't know when. Support material is trickling in. We still don't know what a microworld is. Clearly, there are far more new Logo users than people who can support themselves for now, at least. Logo's growth will depend on the initiative of creative activists. But an international family has been established. That will count for a great deal.

Andrew David is an educational communication consultant working in the Chicago area. His Logo activities include advanced programming, workshops, and teacher training.

## Logo 84 continued

Ihor Charischak:

Logo 84 inspired me. There was something special about this conference - something that I had not experienced before. As I looked back over those three days to find what it was that moved me, I realized that it evolved from my participation with the people who were there.

These people were, for the most part, educators. A few were vendors. Some were students, and the rest were just plain Logo enthusiasts. But I have been to other meetings where similar people had gathered, and didn't walk away so moved.

The difference here was these people had something in common - a vision of what formal education could look like. They were not interested necessarily in bigger, better, or different versions of the same thing, but in establishing a learning environment that was fundamentally different. They called it the Logo environment.

The question that was raised frequently during the conference was, "What exactly is the Logo environment?" Many people described its characteristics, but no one seemed to capture its essence completely.

The truth may be that this environment is not possible to define because it is a spirit rather than a thing - something that can only be satisfying if experienced, not languaged. Without the experience, the words themselves do not make a difference.

I discovered in Cambridge that the essence of the Logo environment is love. Its manifestation did not take on any specific form. I experienced it when I shared with others my vision of the impact that Logo can make on children's lives. Other people may have experienced it by sharing with a large audience in an auditorium, or with a friend over coffee.

What we did at Logo 84 is support each other to go out in the world and model to our colleagues and friends our unique vision of how we can create communities of learners where the motivation is love. To me, that is the key to making education work for all on this planet.

Ihor Charischak directs the Board of Cooperative Educational Services (BOCES) Southern Westchester Instructional Services Department in Ardsley, NY.

Tom Lough:

Logo 84 was a special time. Over 500 enthusiastic participants enjoyed 3 days of panels, group discussions, poster sessions, and other sharing opportunities. There were a number of phrases which seemed to characterize many of the discussions.

"Logo culture" was heard many times, from Dan Watt and others. The role of such a supporting culture in learning with Logo is crucial. As teachers, we must recognize this role, and do our best to establish and maintain this nurturing environment.

Seymour Papert used the phrase "fractured knowledge" in describing ways people learn. We assimilate bits and pieces of information from here and there, eventually putting it all together in a way that makes sense to us. Learning with Logo is often like that.

"A medium for expressing ideas" was used by Harold Abelson to describe a family of computer languages which include Logo, LISP, Smalltalk, and Prolog. This characteristic is absent from most other languages. The ability of Logo to handle and display generalizations of patterns and ideas hints at educational power which is, for the most part, untapped as yet.

"What is the effect of Logo on ---?" is a typical educational research question, and stimulated many animated discussions regarding Logo research. Brian Harvey provided an interesting perspective by reminding us that the pretest / posttest statistical methods were based originally on agricultural experiments. He pointed out that the researchers could not ask an ear of corn how it felt; they also did not care about any individual ear of corn. This contrasts remarkably with the educational environment.

"Extra copies of the pre-proceedings" was a concern of many. Although each participant received a copy, it was evident that this significant document deserved much wider distribution. Its 200 pages contain 17 panelist papers, abstracts of 50 poster sessions, and a bibliography listing over 70 Logo books and hundreds of Logo articles. There are a limited number of copies of the Logo 84 pre-proceedings still available. To obtain a copy, send a check (made out to MIT Logo Group) for \$15 US to MIT Logo Group/Publications, NE43-438, 545 Technology Square, Cambridge, MA 02139.

"When is Logo 85?" everyone wanted to know. It is already in the planning stages. Send your ideas and suggestions to the MIT Logo Group at the above address.



# NLXual Challenges

by  
Robs Muir

## It's About Time

A wise man once said that the educational value of Logo lies not in the way it will affect children, but, rather, on the effect it will have on teachers.

The NLXual Challenges are intended to support that community of teachers interested in experiencing the same frustrations of learning and joys of discovery that they encourage in their own classrooms -- rooms rich in problem solving opportunities. Learning is important at all ages, and turnabout is fair play!

### ON TASK

The task of this column is simple and serious; a problem is posed which is yearning for a Logo solution. Each problem will exercise a different facet of your Logo "interpreter". Your mission (should you decide to accept it) is to figure out how to solve said problem using whatever version of Logo you have.

When you have a working solution (or even a valiant attempt), share it with the Logo community. We compile the contributed solutions, select the most interesting and unusual, and distribute them to each contributor.

Since our "community" now encompasses the US, Canada, and several overseas countries, the contributions are quite diverse. Some possible solutions are available to each problem, but you must contribute your attempted solution (however meager) to receive these "answers". Send your solution, along with a self addressed stamped envelope, to NLXual Challenges, Attn: Robs Muir, 1688 Denver Avenue, Claremont, CA 91711.

### TAKE THIS

September's problem: Create a text based digital clock that will display hours, minutes, and seconds. A suggested format might look something like one of the following.

Hours: 7 Minutes: 23 Seconds: 45

7:23:45

7 Hrs. 23 Min. 45 Sec.

Accuracy is encouraged, creativity is applauded, complexity is discouraged, and excessive use of global variables is a sure sign of a BASIC programmer. If you are a more sophisticated user, can you improve your clock's accuracy by avoiding periodic "garbage collection" (.GCOLL or RECYCLEing)?

For those of you unfamiliar with the Logo textscreen primitives, here are some words to explore: CLEARTEXT, CURSOR (SETCURSOR), LOCAL, NODRAW, PRINT, PRINT1 (TYPE), SENTENCE, TEXTSCREEN, and TECHNICAL MANUAL (REFERENCE MANUAL).

The month of September is ticking away...

Robs Muir is a teacher in the Claremont Unified School District and Claremont Graduate School. He presents Logo workshops in the southern California area.

## Kaypro Logo

In the July / August issue of Profiles, the magazine for Kaypro computer users, an ad by MicroSphere, Inc., appears on page 7, announcing a Logo version for their color graphics board for the Kaypro portable computer!

For more information, write MicroSphere, Inc., PO Box 1221, Bend, OR 97709, or call (503) 388-1194.

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Editor.....Tom Lough

# NLXTRA

The Asociacion Amigos de Logo is an organization which unites Logo users throughout South America. The group sponsors conferences and publishes a regular bulletin in Spanish. To join, send a check for US \$24 to Annelise de Forteza, Asociacion Amigos de Logo, 2969 Salguero, 1425 Buenos Aires, Argentina.

Logo continues to flourish in Australia. Logo is now an officially recommended high level programming language in Victoria, according to COM 3, the journal of the Computer Education Group of Victoria (CEGV). There is a growing interest in teachers creating microworlds, using Logo to write procedures to enable students to learn in various subject areas. At the sixth annual conference of the CEGV in May 1984, an entire session was devoted to Logo which included 9 separate presentations. For more information, write CEGV, PO Box 88, Balaclava 3183, Australia.

Logo is spreading in the Netherlands! During the summer, a travelling team of four lecturers from the University of Scotland taught two Logo courses for teacher trainers at the University of Enschede. Harry Pinxteren publishes a delightful Logo newspaper called Schildpad Nieuws (Turtle News). Although written in Dutch, the paper lists many Logo procedures which are fun to work. For more information, write Harry at Logo Centrum Nederland, Postbus 1408, 6501 BK Nijmegen, Netherlands.

The Midnight Turtle electronic bulletin board of the Young Peoples' Logo Association (YPLA) continues to grow in popularity and size. A hard disk system has been installed, supporting seven separate sections, including opportunities to learn about Logo, BASIC, PILOT, and hardware / peripherals. An important section is dedicated to the Center for Computer Assistance to the Disabled. Hundreds of Logo procedures are available for downloading for YPLA members. The system operates fourteen hours a day, from 7:00 p.m. to 9:00 a.m. Central Standard Time, and all weekend. The number is (214) 783-7548. If you have a modem, give them a call. For more information, write Jim Muller, YPLA, 1208 Hillsdale Drive, Richardson, TX 75081.

A national conference on Computer Technology for the Handicapped in Minneapolis, MN, on September 13-16 features a major strand on using Logo in special education. Presenters include Glen Bull of the University of Virginia. For more information, call Paula Barnhart at (612) 665-6573.

The Business, Youngsters, Technology, and Education (B.Y.T.E.) Foundation is sponsoring a national conference on "Microcomputers, Education, and Children" in Nashville, TN, September 24 - 28. Policy decision making and curriculum planning will be emphasized. The keynote speaker will be Barbara Bowen, Director of the Apple Education Foundation. Steve Tipps will give a presentation entitled, "Logo and Microworlds for Children." For more information, write Terry Summers, B.Y.T.E. Foundation, School of Education, Tennessee State University, Nashville, TN 37203 or call (615) 251-1540.

Discovery '84: Technology for Disabled Persons, a national conference on computers and other high technology products and services for people with disabilities, will be held October 1-3 in Chicago. A workshop on using Logo with learning disabled students is scheduled. For more information, write Office of Continuing Education, University of Wisconsin - Stout, Menomonie, WI 54751, or call (800) 457-8688. (In Wisconsin, call (800) 227-8688.

Computer Using Educators (CUE) publishes an informative newsletter which contains an excellent Logo column by James Milojkovic. James keeps his readers up to date on the national Logo scene, and provides challenging issues and questions to ponder. CUE's SOFT-SWAP maintains several Logo disks for sharing. The newsletter is one of today's outstanding bargains, priced at \$8 per year. For more information, write CUE, PO Box 18547, San Jose, CA 95158.

The Logo and Educational Computing Journal is published 5 times per year. To subscribe, send \$19.95 to Logo and Educational Computing Journal, 1320 Stony Brook Road, Stony Brook, NY 11790. For more information, write to Stephen Sumner at the above address, or call (516) 751-0271.

Would you like to be able to detect lines with your Apple Logo? Then read Jeff Sandys' article, "Touch Sensors for Screen Turtles" in the May 1984 issue of Call A.P.P.L.E. The article contains procedures which allow the turtle to tell when a line is crossed, and shows how to apply the procedures to screen mazes. Call A.P.P.L.E., 304 Main Avenue South, Suite 300, Renton, WA 98055.

Learning Networks has high quality tee shirts and posters available which feature beautiful Logo graphics designs. For a free brochure, send a self addressed stamped envelope to Learning Networks, 215 Beryl Street, Mill Valley, CA 94941. (415) 381-3664.

The beautiful Folkmanis turtle hand puppet is the finest we have ever seen. Children love to watch it pull its head inside its shell and pop back out again! It makes a great addition to Logo classes in primary grades. Look for it at fine toy stores near you. If you are unable to find it, you may order it by mail for \$24.00, including postage and handling. (Virginia residents add 4% tax.) Send your order to Persimmon Corner, Attn: Turtle Puppet, 421 East Main Street, Charlottesville, VA 22901.

Jim Hurley of the University of California, Davis, Department of Physics, has developed a set of physics projects using Logo which are suited for high school use. This project was funded by the California State Department of Education. For a free copy, send a request on your letterhead to Logo Physics, Rio Linda Union School District, 627 L Street, Rio Linda, CA 95673

Digital Research will no longer sell Logo in the retail market, according to a spokesperson. Instead, all Dr. Logo products will be furnished directly to specific computer manufacturers, including Texas Instruments, Digital Equipment Corporation (DEC), and Tandy Corporation (Radio Shack). Purchasers of Dr. Logo for the IBM PC will continue to receive language support from Digital Research. The Dr. Logo newsletter has been discontinued. For more information, write Digital Research Inc., PO Box 579, Pacific Grove, CA 93950. (408) 649-3896.

Patrick Salsich is forming a Logo group in the Portland area. For more information, write to him at 3026 SE Clinton, Portland, OR 97202, or call (503) 289-8839.

Once again, the NLX Logo Class Penpal Network is in operation, sponsored jointly by the University of Virginia's School of Education. Participating teachers are matched with counterparts from various regions of the USA, Canada, or one of several overseas countries, according to grade level, computer compatibility, Logo experience, and interests.

During the school year, students and teachers exchange Logo ideas, procedures, and projects. Of course, many subject areas can be "worked in" as the project continues; handwriting, geography, social studies, mathematics, just to name a few. If you are looking for a new dimension to your teaching with Logo this year, send for a free application today. Mail your long self addressed stamped envelope to NLX, Logo Class Penpal Network, PO Box 5341, Charlottesville, Va 22905.

Use the NLX ABC's to turn your class into a "Logo Street" program with "commercials" such as, "Welcome to another Logo Street show. Today, our program is brought to you by the letters N, L, and X. What designs and pictures can you produce using the procedures for these letters?" For a free copy of the NLX ABC's, a set of procedures to draw all 26 letters of the alphabet, send a self addressed stamped envelope to NLX ABC's, PO Box 5341, Charlottesville, VA 22905. Please specify your computer and Logo version.

A limited number of sets of Volume 1 (September 1982 - May 1983) and Volume 2 (September 1983 - May 1984) of The National Logo Exchange newsletters are available. To order, send \$25 per set to NLX, PO Box 5341, Charlottesville, VA 22905. Please specify which volume is desired.

The NLX Research Directory is available for distribution. It lists over 40 educators who are conducting research in Logo related areas, and includes summaries of their work and interests, and how they can be contacted. If you are engaged in Logo research and desire to be listed, send your name, address, and information about your activity. To obtain a copy of the directory, send a check for \$3 US to NLX Research Directory, PO Box 5341, Charlottesville, VA 22905.